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Senate Hearings

Before the Committee on Appropriations

Department of the Interior and Related Agencies Appropriations

H.R. 9417

92^d CONGRESS, FIRST SESSION

Fiscal Year 1972

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Monday, March 15, 1971 through Wednesday, March 31, 1971

DEPARTMENT OF INTERIOR AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1972

MONDAY, MARCH 8, 1971

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 10 a.m. in room 1114, New Senate Office Building, Hon. Alan Bible (chairman) presiding.
Present: Senators Bible, Ellender, and Percy.

SMITHSONIAN INSTITUTION

WOODROW WILSON INTERNATIONAL CENTER FOR SCHOLARS

STATEMENT OF BENJAMIN H. READ, DIRECTOR

ACCOMPANIED BY WILLIAM M. DUNN, ADMINISTRATIVE AND
BUDGET OFFICER

BUDGET REQUEST AND JUSTIFICATION

Senator BIBLE. The hearing will come to order.

We will first consider the budget for the Woodrow Wilson International Center for Scholars. Our first witness this morning is Benjamin H. Read, director, accompanied by William M. Dunn, administrative and budget officer.

Good morning.

Mr. READ. Good morning, Mr. Chairman.

Senator BIBLE. We will place in the record the justification of the request for \$683,000 in fiscal year 1972 for the Woodrow Wilson International Center for Scholars.

(The justification follows):

WOODROW WILSON
INTERNATIONAL CENTER FOR SCHOLARS

GENERAL STATEMENT

The Woodrow Wilson Memorial Act, approved on October 24, 1968, (Public Law 90-637) established the Woodrow Wilson International Center for Scholars as the nation's official living memorial to the 28th President. The Center was placed in the Smithsonian Institution under the direction of a 15-man, mixed private and public Board of Trustees, subsequently appointed by President Johnson and President Nixon. Former Vice President Hubert H. Humphrey was designated Chairman of the Board.

After a seven-month planning period the Board of Trustees approved at its fall 1969 meeting the opening in October of 1970 of fellowship and guest scholar programs in space made available for the interim use of the Center in the newly renovated, original Smithsonian Institution building on the Mall.

In the fall, winter and spring of 1969-70 the Board of Trustees authorized the publication of notices about the programs of the Center, and the Center staff disseminated information about the programs widely by correspondence with colleges and universities in every state and a large list of individuals and institutions here and abroad, including several Fulbright-Hays binational commissions and foundations in other countries with the consent of the Secretary of State. Hundreds of nominations and applications were received throughout this period and processed by the staff to obtain references, interviews whenever possible and writings of the fellowship candidates. After obtaining the recommendations of outside academic advisory panels on the files of leading candidates, the Fellowship and Guest Scholar Committee of the Board of Trustees approved in March, June and December the issuance of 29 invitations for fellowship appointments which have been accepted by the recipients. Other outstanding applications have been received subsequently and more are expected in the months ahead, which will be processed in the same manner.

The scholars are undertaking work in three principal areas: (1) the increase of understanding, law and cooperative practice between nations in the uses of the oceans; (2) man's overall relations to his deteriorating environment, particularly the international institutional arrangements which must be worked out to resolve environmental problems transcending boundaries; and (3) general studies under the Center's basic theme of "increasing man's understanding of significant international governmental and social problems and improving the organization of society at all levels to meet such problems".

The terms of appointment vary from a few weeks to more than a year in duration; the average to date being more than ten months (6 weeks - 18 months). The average age of the fellows is 39. Half of the first fellows appointed come from the United States; the other half from nine other countries (Australia, England, France, India, Israel, Japan, Korea, Switzerland and Yugoslavia). The first scholars come from the social and behavioral sciences, the humanities, the natural sciences, and careers in government, law, diplomacy and journalism.

In addition, the Center has a small guest scholar program under which eminent visiting scholars, particularly those expert in the fields being emphasized at the Center, are welcome to work for brief periods of stay in Washington.

In response to strong urging received during the legislative hearings, planning, congressional appropriation hearings and subsequent stages, the Center is sponsoring a series of seminars, dinner discussions and lectures to which members of the Executive and Legislative branches, the Diplomatic Corps and the public are invited on a fairly regular basis.

Funding

Section 6 of the legislation creating the Center authorized the appropriation "to the Board" of "such funds as may be necessary to carry out the purposes of the Act" and directed the Board to raise money from private sources as well.

Funding for planning, administrative and preparatory operations from March, 1969, through June 30, 1970, were based on the following sources:

Ford Foundation Grant.....	\$45,000
Federal Appropriations for Fiscal Year-70	
(100,000) Actually Obligated.....	90,799.74

In addition, the State Department transferred \$25,000 to the Smithsonian Institution, which was obligated in fiscal year 1970, to support in part the fellowship appointments at the Center of four duly appointed non-US scholars who arrived during fiscal year 1971.

For preparation and operation (from October 19) of the Center during fiscal year 1971, Congress appropriated \$750,000. On September 1, 1970, \$620,000 was apportioned for the Center's use by the Office of Management and Budget for the administrative expenses of staffing and equipping the Center and for support of the fellowship program.

In addition, the congressional appropriation committees specifically approved the extension of a \$65,000 matching grant to the Center from the National Endowment for the Humanities to support the Center's fellowship program of scholarship in the humanities. As of January 1, 1971, the Center had raised \$38,125.00 of private donations to the NEH so that an additional like amount of matching funds have been made available for the fellowship program. In addition, the Center had raised \$100,075.00 of general purpose donations and \$87,500 of special purpose private contributions as of the same date for a total of \$263,825.00 in private support.

WOODROW WILSON
INTERNATIONAL CENTER FOR SCHOLARS

1970 Appropriation.....	0*
1971 Appropriation.....	\$750,000.00
1972 Estimate.....	683,000.00

Without consideration of the anticipated \$130,000 unobligated fiscal year 1971 balance, the \$683,000 requested for fiscal year 1972 is \$67,000 below the \$750,000 appropriated in fiscal year 1971 and \$63,000 above the \$620,000 actually apportioned by the Office of Management and Budget in fiscal year 1971. When the \$130,000 unobligated balance is added to the \$683,000 requested for fiscal year 1972, the combined total of \$813,000 is \$193,000 above the \$620,000 apportioned in fiscal year 1971 or \$63,000 above the fiscal year 1971 appropriation. The increase is due almost entirely by virtue of the twelve month operation of the Center in fiscal year 1972 as opposed to 8 1/2 months of operation in fiscal year 1971.

The \$683,000 requested will be spent as follows:

Fellowship Program..... \$332,000

The sum requested plus the \$130,000 available in the unobligated balance at the end of fiscal year 1971 will permit the Center to commit funds during fiscal year 1972 for 20 full fellowships to begin during fiscal year 1972 or fiscal year 1973 at an average anticipated cost of \$23,100.00 apiece for stipends and travel. The anticipated costs are based on the same average yearly rate experience levels on which the fiscal year 1971 budget estimates were made with the addition of a five percent actual cost for handling bookkeeping, disbursements and accounting.

The Center's stipend policy, which was approved by the Board of Trustees and spelled out in detail in 1970 submissions to the appropriation committees, is based on the precedents used by the Center for Advanced Study in the Behavioral Sciences (Palo Alto) and the Adlai Stevenson Institute of International Affairs. Each appointed fellow is asked first to devote his sabbatical leave or other earned income during the fellowship period toward his support while at the Center and to seek outside foundation or other support for his study proposal whenever possible. Thereafter, the Center's policy is to attempt to provide the fellow with a stipend rate which would be a no-gain no-loss figure over his earned income rate in the preceding year within set limits (maximum \$25,000 offered to date; \$30,000 authorized) and with a cost-of-living increase for non-U.S. scholars to bring them to an equivalent stipend with U.S. scholars of comparable position.

Most scholars of the stature appointed by the Center to date simply cannot be expected to come at a lower average stipend figure and many will come at a loss because of the preset limit, even though many of them will be devoting sabbatical or leave pay, foundation funds and other outside income to their support during the period of appointment at the Center. The highest stipends offered at the Center for Advanced Study in the Behavioral Sciences, the Fogarty Center (NIH), the Princeton Institute for Advanced Study and the Adlai Stevenson Institute

* \$100,000 for Woodrow Wilson Center was included in Smithsonian's "Salaries and Expenses", Fiscal Year 1970.

are all higher than those offered by the Center to date. The most recent data of the American Association of University Professors shows that in the academic year 1969-70, ten percent of all universities in the U.S. had a mean compensation for full professors above \$23,970.

In addition, the Center offers reimbursement of travel expenses for American carrier, round-trip, direct route, jet economy fare for the fellow and his accompanying dependent family members between his home city and Washington.

As in the present fiscal year, the Center's goal in fiscal year 1972 will be to raise an equivalent amount of private monies for support of the fellowship program to fund an additional 20 fellowships and to bring the Center up to full complement of 40 scholars. The "critical mass" for the Center according to the best advice we have been able to gather is a minimum of 20 to 40 scholars at all times. Without such a minimum number it would be hard for the Center to establish a fully satisfactory intellectual life of its own.

At a meeting of the Board of Trustees Executive Committee on September 23, 1970, it was decided that the Center, OMB and Congressional fiscal year 1972 budget presentations should state as a general principle that the Center would not request public appropriations for more than twenty full fellowships in any given year during the occupancy of present interim quarters, and the Board and staff would attempt each year to raise funds from the private sector to finance an additional equal number of fellowships. The Center's fund raising capability and experience will be fully tested in the months ahead, and a major corporation and foundation fund drive is now being launched.

The experience of other centers and the Wilson Center to date indicates that the heavy majority of appointments must be made many months in advance of the date of the beginning of the period of appointment, and for this reason the Center is requesting the same "no year" provision for the fiscal year 1972 federal appropriation with Congress provided in the Center's appropriation for fiscal year 1971.

Administrative Expenses \$351,000

The \$351,000 request for administrative expenses of the Center in fiscal year 1972 represents an increase of \$11,000 over the sum estimated for this purpose under the figure apportioned for fiscal year 1971.

The breakdown of this figure is as follows:

(1) Staff Salaries - 5 substantive; 10 clerical

1 Director (GS-18)	35,505	
1 Deputy Director (GS-16)	27,432	
1 Administrative Officer (GS-13)	17,878	
1 Librarian (GS-12)	14,665	
1 Information Center Officer (GS-11)	12,302	
10 Secretaries for staff, fellows and guest scholars (GS-9, 1 GS-8, 1 GS-7, 7 GS-5/6 at \$7500 @)	80,000	
1 Equivalent part-time GS 5/6 secretarial	6,879	
	194,661	
	14,339	
	209,000	209,000

(2) Furnishings, Equipment, Supplies, etc.

(a) Furnishings and Equipment	10,000	
(b) Supplies	10,000	
(c) Reference Library (books and periodicals)	23,000	
(d) Printing	9,000	
(e) Travel (trustees, staff and scholars)	15,000	
(f) Consultations (scholar coordinators, fund raising, guest scholars)	30,000	
(g) Seminars, dinner discussions, lectures	20,000	
(h) Permanent Site Selection Scholar Survey	13,500	
(i) Phones	7,500	
(j) Other (postage, etc.)	4,000	
	<u>142,000</u>	<u>142,000</u>
		351,000

A. Staff Salaries

The Center is budgeting in fiscal year 1972, except for the addition of limited part-time secretarial help, for the same number of permanent positions (15) as to be employed in the current fiscal year; 5 professionals; 10 clerical and one part-time clerical--\$209,000. The cost increase of \$26,000 over estimated current fiscal year costs is due to anticipated in-grade promotions and the added year-round cost for the pool secretaries for the fellows, who are on the rolls for only part of the current fiscal year but the entire year in fiscal year 1972. The need for additional part-time clerical assistance is anticipated because of the expected cyclical nature of the workload. Clerical help positions included are designed to permit the Center to assign one secretary to every 4 or 5 scholars, which is ratio found acceptable at other centers of advanced studies. The proposed staff arrangement appears minimal to run the Center, process the heavy flow of applications and scholar selection procedures--which are often as onerous for unsuccessful as for successful candidates--and to provide the essential services approved by the Board of Trustees for the fellows, guest scholars and members of the public.

B. Other Administrative Expenses of \$142,000 are largely self-explanatory.

The proposed scholar survey item, which will be undertaken jointly with the Archives and Library of Congress, will attempt to develop the first precise information about the resident and transient post-doctorate scholars in the Washington area, their work habits and residential arrangements. This information is needed to provide basic data for an intelligent choice of a permanent site for the Center, as directed in the Woodrow Wilson Memorial Act. The furnishings and equipment item is, of course, a fraction of the current fiscal year costs, since the Center will have acquired during the current fiscal year the major share of needed physical assets, other than basic reference library acquisitions which will be spread over three years.

Senator BIBLE. Your written statement will be incorporated in the record at this point, and you may highlight it in your own manner.

(The statement follows):

The Woodrow Wilson International Center for Scholars was created by Act of Congress in 1968 (PL 90-637). After an eighteen-month planning and development period, the Center's fellowship and guest scholar programs opened on October 19, 1970 in excellent interim quarters provided by the Smithsonian Institution on the third and fourth floors of the central section of the newly-renovated, original Smithsonian Institution Building on the mall.

It is a pleasure to present this report of the first five months of operation of the Center as part of the fiscal year 1972 submission to the committee.

The Center's Board of Trustees, chaired by Senator Humphrey, (see list at attachment 2) chose a theme for the Center designed to accentuate those aspects of Woodrow Wilson's ideals and concerns for which he is perhaps best remembered a half century after his presidency--his search for international peace and the imaginative, new governmental approaches he used to meet major contemporary problems. In addition, the Board invited substantial studies in two areas: oceans and environment.

Thus, of the twenty-nine fellowship appointments and nine guest scholar appointments approved as of March 1, 1971 by the Board, acting on the advice of expert advisory panels, (see list attachment 4) the scholars fall into three broad categories:

(1) Seventeen concerned with various general studies under the Center's basic theme of "increasing man's understanding of significant international, governmental and social problems";

(2) Twelve studying problems related to the increase of understanding, law and cooperative practice between nations in the uses of the oceans; and

(3) Nine studying various aspects of man's overall relations to his deteriorating environment, including the international institutional arrangements needed to resolve environmental problems transcending national boundaries.

As indicated by the list of scholars included at attachment 1, with biographical information and brief description of projects, the scholars appointed are:

- strongly international in makeup since approximately half come from the United States and half from other countries;
- selected from many nonacademic professions and occupations (government, law, business, journalism, diplomacy, etc.) as well as a variety of traditional academic disciplines (social sciences, humanities and natural sciences);
- appointed for short as well as long terms of appointment to facilitate participation by busy executives as well as traditional scholars with well-developed study proposals;
- chosen without consideration of arbitrary age limits; and
- working individually as well as in groups in approaching their subjects of study.

In summary, Center scholars are appointed primarily for what they can contribute to the increase and diffusion of knowledge about significant international, governmental and social problems and their solutions.

In other words, the Wilson Center is not primarily an educational institution. It is not primarily a cultural exchange program--although both educational and cultural exchange benefits will exist. It is primarily a center for the encouragement of scholarship on vital current problems by persons of outstanding intellectual qualifications, experience and dedication.

Since the Center is a year-round institution, scholars come and go and applications and nominations are received and processed year-round, the

number of persons studying at the Center at any one time will fluctuate up to a maximum capacity of about 40. Invitations for appointment are issued regularly three times each year in December, March and July.

The development of the Center's institutional life has taken several forms. One is a regular weekly seminar on each of the two topics of special emphasis, both of which have attracted a number of the fellows from other fields of concentration and a substantial number of outside experts. A second procedure has been a noon discussion hour on Tuesdays and Fridays at which Center scholars and invited guests lead informal conversations on a variety of topics.

In addition, the Center is sponsoring a series of late afternoon seminars and dinner discussions to which members of the Legislative and Executive Branches, the diplomatic corps and the public are invited on a fairly regular basis. Speakers and guests at such occasions to date have included Professor Rene Dubos of Rockefeller University; Mr. Edward Wenk of Washington University; Ambassador Arvid Pardo of Malta; Mr. John Stevenson, Legal Advisor of the Department of State; Ambassador George Bush, U.S. Ambassador to the U.N.; and Mr. Christian Herter, Special Assistant to the Secretary of State for Environmental Affairs. We hope that these seminars and discussions will be of increasing interest to the Members and their staffs.

The Congress and the trustees have envisioned a Center with an intellectual climate encouraging vigorous exchange of ideas and insights among the scholars in residence and between them and the capital community, and this process is well underway. In addition, of course, the scholars are producing a variety of articles and books for publication and a number of these have already been accepted for early publication.

Funding

The Woodrow Wilson Memorial Act creating the Center authorized the appropriation "to the Board" of "such funds as may be necessary to carry out the purposes of the Act" and directed the Board to raise money for such purposes from private sources as well.

By virtue of the strenuous efforts of the trustees and of Mr. C. Peter McColough, Chairman of the Center's Advisory Committee (see list attachment 3), \$288,066.42 had been raised from private sources for the Woodrow Wilson Center as of March 1, 1971, including \$48,125.00 from the National Endowment for the Humanities under a \$65,000 matching grant to the Center. The Center's private donations receipts are detailed at attachment 5.

The first federal appropriation for the Center was \$100,000 as part of the Smithsonian's "Salaries and Expenses" for fiscal year 1970, of which \$90,799.74 was actually obligated.

During fiscal year 1971 Congress appropriated \$750,000 for preparation and operation of the Center. On September 1, 1970 \$620,000 was apportioned for the Center's use by the Office of Management and Budget for the administrative expenses of staffing and equipping the Center and for support of the Center's fellowship program.

The Office of Management and Budget has indicated that it will make available the \$130,000 of unobligated balance of "no year" funds at the end of fiscal year 1971, and in addition to that, the Board of Trustees of the Center is requesting Congress to approve an appropriation of \$683,000 for fiscal year 1972.

The \$683,000 requested for fiscal year 1972 is \$67,000 beneath the \$750,000 appropriated in fiscal year 1971, or \$63,000 above the \$620,000 actually apportioned by the Office of Management and Budget in fiscal year 1971.

When the \$130,000 unobligated balance is added to the \$683,000 requested for fiscal year 1972 the combined total of \$813,000 is \$193,000 above the \$620,000 apportioned in the fiscal year 1971, or \$63,000 above the fiscal year 1971 appropriation. The increase is due almost entirely to the twelve-month operation of the Center planned for fiscal year 1972 as opposed to the 8-1/2 months of operation in fiscal year 1971.

The \$683,000 requested would be spent as follows:

Fellowship Program - \$332,000 of the requested funds plus the \$130,000 available in the unobligated balance at the end of fiscal year 1971 would permit the Center to commit funds during fiscal year 1972 for twenty full fellowships to begin during fiscal year 1972 or subsequently at an average anticipated cost of \$23,100 apiece for stipends and travel. The anticipated costs are based on the same average yearly rate experience levels on which the fiscal year 1971 budget estimates were made with the addition of a five percent actual cost for bookkeeping disbursements and accounting.

The Center's stipend policy approved by the Board of Trustees was spelled out in the 1970 submissions to the committee and is based on the practice of several other advanced studies centers. Under this policy each appointed fellow is asked first to devote his sabbatical or leave pay or other earned income during the fellowship period toward his support while at the Center and, second, to seek outside foundation or other support for his study proposal whenever possible. Thereafter, the Center's policy is to attempt to provide the fellow with a stipend rate which would be a no-gain, no-loss figure over his earned income rate in the preceding year (within a \$30,000 ceiling authorized by the Board) with a cost of living increase for non-U.S. scholars to bring them up to an equivalent stipend rate with U.S. scholars of comparable experience and position.

In addition, the Center offers reimbursement of travel expenses for American carrier, round-trip, direct route, jet economy fare for the fellow and his accompanying dependent family members between his home city and Washington.

The Executive Committee of the Board of Trustees determined that in the Center's fiscal year 1972 and subsequent budget submissions to the Office of Management and Budget and to the Congress, the Board would not request public appropriations for more than twenty full fellowships in any given year during the occupancy of present interim quarters, and the Board and staff and advisory committee would attempt each year to raise funds from private sources to finance an additional like number of fellowships.

The experience of other advanced study centers and the Wilson Center to date indicate that most appointments must be made many months in advance of the date of the beginning of the period of appointment, and for this reason the Center is requesting the same "no year" provision for the fiscal year 1972 federal appropriation which Congress provided in the Center's appropriation for fiscal year 1971.

Administrative Expenses - The \$351,000 requested for administrative expenses of the Center in fiscal year 1972 represents an increase of \$11,000 over the sum estimated for this purpose under the figure apportioned for fiscal year 1971.

The Center is budgeting in fiscal year 1972, except for the addition of one full equivalent part-time secretarial position, for the same number of permanent positions (15) as employed in the current fiscal year: 5 professional, 10 clerical and one part-time clerical for \$209,000.

The cost increase of \$26,000 over the estimated \$183,000 current fiscal year salaries cost is due to anticipated in-grade promotions and the added year-round costs for the pool secretaries for the fellows, who are on

the rolls for only seventy percent of the current fiscal year but for the entire year in fiscal 1972. The need for an additional part-time clerical position is based on the demonstrated cyclical nature of the workload. Clerical help positions are designed to permit the Center to assign one secretary to every four or five scholars, which is the ratio found acceptable at other centers of advanced study and workable in practice to date.

The other administrative expenses of \$142,000 are listed in detail in the justification sheets. The furnishing and equipment item is, of course, a fraction of the current fiscal year costs, since the Center will have acquired during the current fiscal year the major share of needed fiscal assets, other than basic reference library acquisitions which will be spread over a three-year period.

On February 18, 1971, President Nixon and Senator Humphrey, Chairman of the Board, jointly presided over the official dedication ceremony of the Center. In his remarks Senator Humphrey stated well the theme of the Center: "So, Mr. President, in dedicating the Woodrow Wilson International Center for Scholars today, we have set our sights high indeed. We ask no less today of the scholars and staff of the Center and those who will follow than that they dedicate their experience, creativity and insights to the solutions of man's primary problems and the need for change to meet those problems."

The Board and staff of the Center are convinced that the members of the Committee who made possible the opening on schedule of the Center last fall will share our sense of pride at the new scholars' community which has come into being in the nation's capital in honor of the nation's 28th President. We hope that each Member of the Committee will have a chance to visit the Center in the weeks and months ahead and to meet the scholars assembled there from this and many other countries whose presence and work constitute Woodrow Wilson's 'living memorial'.

March 1, 1971

Fellows and Guest Scholars of
Woodrow Wilson International Center for Scholars

A. Fellows

(1) Environment Studies

Stephen V. Boyden, 45, Australia, Head of Urban Biology Group at Australian National University. Writer and lecturer on broad biological consequences of advancing technology in advanced societies. Writing book on "The Biology of Civilization" which will be an attempt to describe aspects of the contemporary human situation in biological perspective, and to discuss interaction between natural and cultural processes as they relate to problems of modern man. (October 1970 - February 1971.)

Douglas M. Costle, 31, attorney and government official. Graduate of Harvard University and University of Chicago Law School. As a senior staff associate on the Environment and Natural Resources Panel of the President's Advisory Council on Executive Organization under Roy Ash, Costle and one other have been given principal credit for formulation of President Nixon's reorganization plan and message on the new Environmental Protection Agency (EPA). Will concentrate at the Center on related basic values issues of the quest for a better environment and the international institutional and political questions which will call for sustained attention.

Elizabeth Haskell, 28, formerly on research staff of the Urban Institute in Washington, D. C.; previously a legislative aide to U.S. Senator Jackson; and policy analyst for the Assistant Secretary of the Interior for water pollution control; is heading small task force project funded largely by the Ford Foundation to analyze state environmental institutions. The study will formulate general guidelines based on legal and public administration research, to assist state legislatures in developing comprehensive, environmental institutional arrangements. Currently also co-authoring book on thermal pollution, she has in past year compiled two-volume compendium and evaluation of federal programs involved in urban waste management and regulation of quality of urban environment.

Paul G. Kuntz, 55, Professor of Philosophy, Emory University, Atlanta. A Ph. D. from Harvard, Kuntz has also taught at Smith and Grinnell Colleges. He is the author of several books on philosophy and numerous articles covering a wide range of humanist concerns. Is working at the Center on various writings stemming from The Concept of Order (1968) such as order in individual experience, the ordering of societies, and concepts of the order of nature crucial in discussions of the environment.

Athelstan Spilhaus, 59, meteorologist, oceanographer, environmentalist; American Association for the Advancement of Science, president 1970-71; Chairman of the Board 1971-72. Self-employed as writer and consultant in Florida during last year, Spilhaus has been president of the Franklin Institute in Philadelphia 1967-69; dean of the Institute of Technology at the University of Minnesota 1949-66; and has held a succession of teaching, consulting and board positions in the fields of meteorology, oceanography and other natural

sciences. He has held presidential appointments--UNESCO, Seattle World's Fair and National Science Board--under Presidents Eisenhower, Kennedy and Johnson. His extensive writings have concentrated recently on environmental issues, particularly new town issues.

Robert E. Stein, 32, Attorney Adviser, Legal Adviser's Office, Department of State; served as attorney for U.S. Section of International Joint Commission (U.S. & Canada); previously attorney, U.S. Arms Control and Disarmament Agency; honor graduate, Brandeis University and Columbia Law School. His project deals with methods of organizing transnationally for environmental control with special emphasis on the role that can be played by regional institutions.

(2) Ocean Studies

R. P. Anand, 37, Professor and Head of the Department of International Law, School of International Studies, Jawaharlal Nehru University in New Delhi; author of several books and numerous articles on international courts, arbitration, conflict settlement, developing role of the newly-independent Asian-African countries in the present international legal order, and several other aspects of international law. Is writing a book on "Legal Regime of the Sea-bed and the Developing Countries."

Edward Duncan Brown, 36, Senior Lecturer in International Law at University College, London; Master of Laws with Distinction and Ph.D., University of London (Ph.D. thesis on legal regime of submarine areas); author of The Legal Regime of Hydrospace, 1971, and a number of articles and papers on ocean issues, particularly legal regime of deep sea mineral exploitation, freedom of scientific research, and pollution problems. Is completing a study on Arms Control in Hydrospace and undertaking a comparative study in depth of institutional models for a legal regime for the sea-bed beyond national jurisdiction.

Lucius C. Caflisch, 34, Assistant Professor of International Law, Graduate Institute of International Studies at Geneva, Switzerland. Holds law degrees (Licence en droit and Docteur en droit) from the University of Geneva and a Master of Arts Degree from Columbia University. Has published a book and articles on international law in various periodicals. Is doing research and writing on international legal questions relating to the pollution of the seas.

Moritaka Hayashi, 32, member of study group of ocean exploitation law at Japanese Institution of International Business Law in Tokyo; Lecturer at Hosei University in Tokyo; previous assignments with legislative reference bureau of the Japanese Diet. Has law degrees from both Waseda University in Tokyo and Tulane University in New Orleans, and has done advanced graduate study work at the University of Pennsylvania. Author of several articles and a book on various aspects of the law of the sea, particularly on continental shelf problems. Will do systematic research on Soviet attitudes toward ocean space, deep seabed and ocean floor problems, and the prospects for international cooperation with the West in this area. (Coming March, 1971.)

E. W. Seabrook Hull, 47, marine affairs publicist. President, Nautilus Press, and editor, Ocean Science News, Coastal Zone Management, and World Ecology 2000; previously editor, Underseas Technology; editor with McGraw-Hill, Whaley-Eaton Service; authors of books and articles on oceans; Master of Marine Affairs, University of Rhode Island. Is working on model international regime for prevention, control and clean-up of ocean pollution.

Vladimir Ibler, 57, Professor of Public International Law, University of Zagreb, Yugoslavia. Author of a number of publications on international law, in particular on the law of the seas. Is studying problems arising in connection with the proposed conference on the law of the sea in 1973, especially those of preservation of freedom of the seas.

Gerard J. Mangone, 52, former Vice President for Academic Affairs and Professor of Political Science at Temple University, Philadelphia, is the author, co-author, or editor of some twenty books on international relations. He is Senior Fellow and Coordinator of Ocean Studies at the Woodrow Wilson International Center for Scholars.

P. S. Rao, 27, a graduate of Andhra University, Waltair, India. Rao has just received his doctorate in international law from Yale University. His thesis was on "Legal Regulation of the Exploitation of the Deep Seabed". Is doing research on the international issues involved in offshore natural resources exploitation and world public order.

George E. Reedy, Jr., 52, writer; previously press secretary to President Johnson 1964-65; special assistant to the Vice President 1961-63; staff director, Senate Majority Policy Committee, 1955-60; member of (Stratton) Commission on Marine Science Engineering and Resources (1967-69). Based on his experience on the Stratton Commission and extensive subsequent research, Reedy is writing a book on marine policy problems.

Hideo Takabayashi, 43, Professor of International Law, Ryukoku University, Kyoto, Japan; author of numerous articles and book on maritime and ocean law problems, particularly questions concerning the territorial sea. Is doing study of future regime of the deep seabed and the exploitation of its resources, with special emphasis on the needs of developing countries. (October 1970 - March 1971.)

(3) General Studies

R. C. Anderson, 51, Associate Director, Brookhaven National Laboratory; specialist in chemistry and American Literature; studied role of science in modern society by an interview process with officials in the Executive and Legislative Branches. (October - November 1970.)

Shlomo Avineri, 37, political scientist and historian; chairman of the Political Science Department of Hebrew University in Jerusalem; Ph. D. from London School of Economics (1964). Author of recent works on Marx and Hegel, Avineri wishes to pursue his studies of possible options for the resolution of the Arab-Israeli conflict, with special attention to the role of the Palestinians on whom he is an acknowledged expert. (Coming Sept. 1971.)

Rajeshwar Dayal, 61, former senior fellow at Woodrow Wilson School, Princeton; previously Foreign Secretary and Head of Indian Foreign Service; Special Representative of U.N. Secretary General in Congo and head of U.N. Mission; Indian Permanent Representative to U.N.; High Commissioner to Pakistan; Ambassador to France, Yugoslavia, Bulgaria, Romania and Greece; Minister in Moscow. Is writing book on international peacekeeping, conciliation and mediation, drawing particularly on U.N. Congo experience.

Alton Frye, 33, on leave as Administrative Assistant to Senator Edward W. Brooke; political scientist; writer; Ph. D. from Yale; former staff member of the Rand Corporation. Is writing book on "A Responsible Congress: The Legislative Context of American Foreign Policy", for which he has received a grant from the Council on Foreign Relations.

Jackson Giddens, 35, Assistant Professor of Political Science at MIT; Ph. D. from Fletcher School of Law and Diplomacy. He is studying the origins and effects of Wilson's approach to communications with other nations, particularly the idea of open diplomacy and its implications for American propaganda overseas.

Jules Gueron, 62, Professor, Science Faculty, Sorbonne; specialist in physical chemistry; former Director, French Atomic Energy Commission; former Director General, European Atomic Energy Community. Wants to study (1) process by which U.S. Government science policy is developed; and (2) relevance of U.S. interstate regulating system for European Community. An internationally known physical chemist and science administrator as well as a philosopher and student of comparative political developments. (Coming June 1971.)

Donald L. Horowitz, 31, attorney, U.S. Department of Justice. Law degrees from Syracuse and Harvard Law Schools; Ph. D. in government, Harvard University. Author of several articles on race and ethnic problems. Horowitz plans to undertake research and comparative study at the Center on the politics of ethnic and racial relations in developing countries. The study will center on (1) the sources of ethnic conflict, (2) the patterns of ethnic politics, and (3) the strategies of ethnic accommodations in divided societies.

Robert E. Lane, 53, Political Science Department, Yale University; formerly, chairman of department; President, 1970-71, of American Political Science Association; author of several books and numerous articles on American government and political life; is studying ways in which political science research can become more useful and better known to top Executive and Legislative Branch officials.

Yves-Henri Nouailhat, 35, French historian, writer; Assistant Professor of History at the University of Nantes; is studying relations between France and U.S. between 1914 and 1917 for which he has received a grant from the American Council of Learned Societies.

H. J. Rosenbaum, 29, Assistant Professor of Political Science, Wellesley College, and specialist in Latin American politics and comparative foreign policy. A Ph. D. from the Fletcher School of Law and Diplomacy and author of numerous articles on Latin American Affairs, Rosenbaum is studying recent Latin American security developments and writing a book on Brazilian economic and political development.

Harold I. Sharlin, 45, Professor of History, Iowa State University. Teaches history of science and technology and their influence on American culture; author of numerous articles and of The Making of the Electrical Age (1963), The Convergent Century: The Unification of the Sciences in the Nineteenth Century (1966), forthcoming work on Lord Kelvin. Is working on the role of 19th century science and technology in the formation of American attitudes and beliefs.

Kurt R. Spillmann, 33, Switzerland, specialist in American History at University of Zurich; holder of research fellowship at Yale University, 1969-70; author of several publications, including articles on Wilson and Roosevelt. Studying "motives and goals of the peace concepts of Woodrow Wilson and Franklin D. Roosevelt: a case study of the gap between long-range objectives on foreign policy and the realities of making peace."

David Wise, 40, author and journalist, Washington, D. C.; formerly Washington Bureau Chief, New York Herald Tribune; co-author of The U-2 Affair (1962), The Invisible Government (1964), The Espionage Establishment (1967); and Democracy Under Pressure (1971), a college textbook on the American political system; numerous articles in leading newspapers and magazines. Studying processes through which government-decision making and action, especially in the field of foreign policy are - or are not - translated into public information and public support.

B. Guest Scholars

Lynton K. Caldwell, 57, political scientist; professor of government at Indiana University; author of a number of books and publications on biopolitics, science, ethics and public policy and articles over several years on environmental questions. Now working on book on "Protecting the Biosphere: International Organization for Environmental Control" for publication in 1972 prior to U.N. Environmental Conference. Based on considerable travels books will concentrate on international understanding, cooperation and arrangements necessary for combatting environmental problems on international scale, influence of international business, science and technology and limitations of present international structure. Will conduct and participate in planned series of seminars at Center in 1971 on international environmental issues.

Aaron L. Danzig, 57, attorney, senior partner in law offices of Nemeroff, Jelline, Danzig, Paley and Kaufman, New York City; A.B. and LL.B. Columbia; LL.M. New York University; President, U.S. Financial Co., Inc., New York City; charter member World Peace through Law Center; chairman of U.N. Charter Commission; member Commission to Study Organization of Peace. Author of books and articles, including draft legal regimes on seabeds, U.N., etc. Plans to spend three weeks at Center developing treaty proposal on ocean pollution matters.

Wilton S. Dillon, 47, anthropologist and educator, Smithsonian Institution, former director of seminars, now attached to Office of Environmental Sciences. A former university teacher and foundation executive, Dr. Dillon spent six years at the National Academy of Sciences, Washington, D. C., helping to organize international cooperation on science and technology in developing countries. He is author of Gifts and Nations, and co-editor,

Man and Beast: Comparative Social Behavior. He is presently working on an essay about the management of science diplomacy, and a book on intellectual life in Africa.

Rene Jules Dubos, 69, micro-biologist and leading environmentalist; professor at Rockefeller University in New York City; first to demonstrate feasibility of obtaining germ-fighting drugs from microbes more than twenty years ago. Noted author of fourteen books, including Pulitzer Prize in 1969 for "So Human an Animal". Dubos has been concerned with the effects and environmental forces--physicochemical, biological and social--exerted on human life. His interest in the biological and mental effects of the total environment has involved him in the sociomedical problems of the underprivileged communities as well as the developed areas of the world. Dubos has indicated he will devote "ample time to participate in the activities of the Woodrow Wilson International Center" in defining environmental study objectives and in helping to find and select the scholars who would like to work on these problems at the Center in its opening year.

V. A. Fedorovich, 46, U.S.S.R., has higher degrees in both engineering and economics and has taught political economy at the University of Moscow. Currently a research fellow at Institute of U.S.A. in Moscow, Fedorovich is a specialist in science policy and is gathering data on U.S. government system of research and development contracting in science. (January - February 1971.)

Terrence R. Hutchins, 33, has degrees in history and law from Pembroke State University and Wake Forest University. American Council on Education Fellow, 1969. Conducting research on the impact of federal involvement in the education of American Indian students. (In December, 1970.)

Albert Koers, 28, Holland, visiting Assistant Professor of Marine Affairs, University of Rhode Island. Degree in law from University of Utrecht, Netherlands. Presently on leave from his position as research associate, Institute for International Law, University of Utrecht. Mr. Koers is spending regularly several days per month at the Center in collaboration with Fellow, Seabrook Hull on an ocean studies project.

Peter Sand, 35, Legal Officer in charge of Environment Protection, Food and Agriculture Organization of the United Nations, Rome, since 1970; previously member of Faculty of Law of McGill University, Montreal, Canada (1968-70); Haile Selassie University, Addis Ababa, Ethiopia (1965-68). (Coming September - October 1971.)

Ludwik Kos-Rabcewicz-Zubkowski, 67, Associate Professor of Criminology, University of Ottawa. To engage in a comparative study of the fundamental rules of treatment of juvenile delinquents in NATO countries. (Coming April - May, 1971.)

Edward Wenk, Jr., 50, professor of engineering and public affairs, University of Washington; Chairman, Committee on Public Engineering Policy, National Academy of Engineering; formerly executive secretary (1966-70), National Council on Marine Resources and Engineering Development; leading authority on multiple policy aspects of ocean uses; first advisor on science and technology, Legislative Reference Service, Library of Congress; Executive Secretary of Federal Council for Science and Technology; Director of Engineering in civil engineering, Johns Hopkins. Dr. Wenk is spending regularly two days a month on ocean studies at Center.

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to Woodrow Wilson International Center for Scholars
 (*to National Endowment for the Humanities for
 use of WWICS under \$65,000 matching grant.
 Total matched to date: \$48,125.00)

<u>Date Received</u>	<u>Donor</u>	<u>Amount</u>
4/1/69	Ford Foundation	\$45,000.00
3/3/70	C. R. Smith	500.00
6/4/70	C. R. Smith	500.00
5/11/70	Occidental International Corp.	1,000.00
5/27/70	J. D. Bowerstock	75.00*
5/28/70	Harold Linder	1,000.00
	Bureau of National Affairs	100.00
	Charles F. Baird	25.00
6/12/70	Ford Foundation	17,000.00*
6/17/70	Arthur D. Little Foundation	100.00
6/19/70	The Andreas Foundation	10,000.00
7/21/70	Seymour J. Rubin	50.00*
8/3/70	I. B. M. Corporation	10,000.00*
8/13/70	Riggs National Bank	250.00
9/4/70	Jacob Blaustein	2,500.00
9/15/70	American Council of Learned Societies (Nouailhat)	500.00
9/23/70	Ford Foundation (Haskell Project)	95,000.00
9/28/70	New York Times Foundation (Library)	5,000.00
10/7/70	G. William Miller	1,000.00*
11/2/70	Xerox Corporation	15,000.00
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11/10/70	Paul Ignatius	100.00
11/30/70	Poynter Foundation	5,000.00
12/14/70	Anonymous	1,000.00
1/4/71	Merck & Co., Inc.	1,000.00
1/11/71	American Council of Learned Societies (Nouailhat)	500.00
1/21/71	Electronics Corp. of America	500.00
1/26/71	Scovill Manufacturing Co.	500.00
1/27/71	Cameron-Brown Co.	100.00
2/17/71	C. Peter McCough	1,141.42
2/22/71	Caterpillar Tractor Co.	500.00
2/23/71	I. B. M. Corporation	10,000.00*
	National Endowment for Humanities	48,125.00
	TOTAL	\$288,066.42

PRESENTATION FORMAT

Mr. READ. Thank you, Mr. Chairman.

I welcome the chance to give you a report on the opening of the Woodrow Wilson International Center for Scholars and our plans for the coming year.

With your permission I would like to take 2 or 3 minutes to highlight the substantive operations of the Center's fellowship and guest scholar programs in the 5 months in which we have been operating.

APPROPRIATION AND APPORTIONMENT FOR 1971

Senator BIBLE. How much did you have last year?

Mr. READ. We were appropriated \$750,000, Mr. Chairman, and the Office of Management and Budget apportioned \$620,000 of the \$750,000.

Senator BIBLE. So \$620,000 is what you had last year?

Mr. READ. Yes.

Senator BIBLE. All right.

CENTER OPENING

Mr. READ. After rather strenuous planning, preparations, and fundraising efforts by the Board of Trustees, advisory committee, and staff, the Center opened on October 19, 1970.

FIRST FELLOWS AND GUEST SCHOLARS

We are exceptionally pleased with the first scholars chosen by the Board on the advice of expert advisory panels. Since this is a "living memorial" institution, I hope you will have a chance to look at the list of the first 40 fellows and guest scholars appointed to date with individual biographical and studies information included. That is attachment 1 to the formal statement placed in the record this morning.

If I may, I would like to try to summarize their makeup briefly and the reasoning that led to their choices.

First, they are strongly international. Approximately half of the first scholars appointed come from the United States; half from 11 other countries: Australia, France, Holland, India, Israel, Japan, Switzerland, the United Kingdom, the USSR., and Yugoslavia. In a group now being considered, I am glad to report there are scholars from Latin America and Africa.

Second, they come from many nonacademic professions and occupations—government, law, business, journalism, diplomacy—as well as from a variety of the traditional academic disciplines, including the social sciences, humanities, and natural sciences. The Board felt strongly that no one discipline or occupation has a monopoly on "the world of learning," to use the phrase in our statute, and that persons of intelligence and experience from many walks of life were needed to gain insights and answers to today's complex and interrelated problems.

Among those at the Center currently are two heads of American learned societies, several international law authorities, two journalist/writers, a Senate administrative assistant, four contemporary historians, an urban expert, and three drawn from government careers, among others.

Third, they are given short as well as long terms of appointment—from 3 weeks to 18 months (averaging 10 months) in the first group to

facilitate participation by busy professional people as well as traditional scholars with well developed study projects.

Fourth, the scholars are chosen without consideration of arbitrary age limits. The first fellows range in age from 27 to 62 and the average happens to be about 39 or 40.

Fifth, they work individually as well as in groups. Ten appointments have been awarded to those working on problems relating to the increase of international understanding, law and cooperative practice among nations in the uses of the oceans. Six are working on broader environmental issues from the viewpoints and experiences of a variety of disciplines and occupations. Thirteen others are pursuing various individual contemporary policy studies as shown on the list of appointments.

As Senator Humphrey, our board chairman, reported to President Nixon at the Center's official dedication last month:

The scholars are appointed to the Center primarily for what they can contribute . . . to the better understanding and solution of significant contemporary, international, governmental and social problems.

DEVELOPING INSTITUTIONAL LIFE

Weekly seminars in the two areas of specialty, biweekly noon discussion hours, occasional evening dinner discussion meetings—with resident scholars and frequent guests—a variety of papers, articles and books, some accepted for early publication, have all been part of the early, developing institutional life of the Center. All scholars accepting appointments agree in advance to share the insights and work undertaken here with their colleagues and a wider audience on a regular basis.

INTERIM QUARTERS

The interim quarters for the Center generously provided by the Smithsonian Institution are excellent in all respects. We are very fortunate, indeed. The offices, library, meeting and commons rooms are ideal for scholars' uses, and the relationship with the Smithsonian is an altogether satisfactory one.

APPROPRIATION REQUEST AND PRIVATE FUNDS

Proceeding to the funding request, which is discussed in the second half of my statement, we are requesting an appropriation of \$683,000 for the Center for fiscal year 1972. This is \$67,000 less than the \$750,000 appropriated for fiscal 1971, or \$63,000 above the \$620,000 actually apportioned by the Office of Management and Budget in the current fiscal year.

The increase is due almost exclusively to the 12-month operation of the Center for the next fiscal year as opposed to eight and one-half months in fiscal year 1971.

As indicated, we would propose to spend or commit \$332,000 of the requested funds plus the \$130,000 available in the unobligated balance at the end of the fiscal year—or a total of \$462,000 for 20 fellowships to begin in fiscal year 1972 or subsequently.

The board, advisory committee headed by Mr. C. Peter McCollough, president of Xerox, and center staff would attempt to raise funds from private sources to finance an additional 20 fellowships in the same period to bring the Center up to full capacity. As of March 1, a

shown on the last attachment to my statement, \$288,000 had been raised from private sources.

The additional \$351,000 fiscal year 1972 appropriation requested for administrative expenses is detailed on page 4 of the justification submission.

Mr. Dunn and I would be pleased to try and answer any questions.

FEDERAL AND PRIVATE FUNDED FELLOWSHIPS

Senator BIBLE. Does that break out so that it is a little less than 50-50 private matching? Is that true? Is that about the way it breaks out?

Mr. READ. That is true to date. We are aiming, sir, for 50-50 fellowship support in the coming year. It is somewhat less than that this year in terms of what we have been able to raise.

Senator BIBLE. I see. But the ultimate is to have it on a 50-50 basis for 40 fellowships?

Mr. READ. Correct, sir. Twenty fellowships from Federal appropriations and 20 from the funds that we are making efforts to raise on the outside.

Senator BIBLE. Again what is the amount of the fellowship?

Mr. READ. The amount sought for fellowships—

Senator BIBLE. I mean what does it break out into with the average fellowship?

Mr. READ. The average fellowship is estimated at \$23,100, which is based on the experience level that we have been given from five or six other advanced studies centers.

Senator BIBLE. So it is in the \$23,000 range?

Mr. READ. Yes. Of course, individual costs go down below and above that.

Senator BIBLE. I understand that. There is a little variation but it is in that neighborhood.

Mr. READ. Yes, sir.

Senator BIBLE. The number of fellowships as of now is 39. Did I understand you correctly?

Mr. READ. There are 29 fellowships and 10 guest scholar appointments to date, sir.

FELLOWSHIPS AND GUEST SCHOLARSHIPS

Senator BIBLE. Distinguish between the two. I am not sure I know the difference between a fellowship and a guest scholar appointment.

Mr. READ. Guest scholars are those who are with us occasionally or for short lengths of time.

Senator BIBLE. At the same rate? Do they get the \$2,000 a month?

Mr. READ. No; most of the guest scholars are just using our facilities and are not receiving a stipend. Others are receiving expenses and something above that when they are serving as research assistants. The fellowships are those who are appointed for longer terms, averaging 10 months. The guest scholars are occasional or short-term visitors at the Center.

Senator BIBLE. Now, on the completion of a fellowship appointment or award—You say they average 10 to 12 months?

Mr. READ. Yes, sir; so far.

Senator BIBLE. Does that end the complete fellowship or does it go for the second year as well?

Mr. READ. The longest fellowship we have granted to date is 18 months. At the end of each year with appointments longer than 12 months we have told them that we would review their status with the Center in order to determine whether to offer them a continued fellowship. We have a feeling of obligation for turnover because of the limited size of the Center and the partial public base.

Senator BIBLE. Do they receive some kind of an award at the end of 18 months?

Mr. READ. No, sir.

Senator BIBLE. Twelve months or whenever.

Mr. READ. No. This is not a degree or credit granting educational institution. These are people well established in their own professions and by and large they are here to write articles, to write books, and to engage in discussions of contemporary issues that they are expert on.

Senator BIBLE. Well, there is no diploma and there is no degree, it is not an educational institution?

Mr. READ. Correct, sir.

WORK OF THE SCHOLARS

Senator BIBLE. And the end product of the International Center for Scholars is an improved writing, is that it, or an improved research? How do you measure in terms of production?

Mr. READ. Well, it is actually a very selfish concept that they are chosen on. We are trying to select people that will contribute some new insights and solutions to very tough current questions. As we see it, they will contribute in a variety of ways: by the discussions they engage in while here; by panel discussions; by the articles and the books that they are writing.

Senator BIBLE. I am having a little difficulty in measuring the value of the discussions while there, because that would be only among a very few people. How would the United States, for example, or the world as it is international, profit by some discussions that they had among themselves?

Mr. READ. We have guests in constantly, sir, from the executive branch, the legislative branch, and the public, so there is that return to the public. In addition the papers they undertake here will become, of course, public knowledge when published, so there will also be that return.

Senator BIBLE. I can understand that. If I had the fellowship, I attend for whatever period of time it is—the 10 or 12 months or 18 months or whatever term is worked out at the end of that—if there is a paper or a book, I can see where I have made a contribution. What if I just go for 18 months and don't do anything? There is no penalty against that, is there?

Mr. READ. It will be the job of the staff to see that that is not so, Mr. Chairman. We are not going to be a repository for people who simply wish to recharge their batteries. The people who have agreed to accept appointments offered by the Board have all agreed to undertake study proposals which the Board has approved, and in each case they call for substantial work in a variety of forms. We have found that they are putting in extremely full time on their various tasks.

Senator BIBLE. I am not questioning their putting in the full time, I am questioning what happens at the end of their putting in the full time. You say they will produce books or reports or papers. Assuming that to be correct—and I know you are just at the formative stage—you have the 40 scholars and they produce 40 papers. What happens to the 40 papers at the end of their tour of duty, so to speak? Where do the papers go?

Mr. READ. The Center will be publishing occasional papers as we go along. We may be publishing compilations of those papers. Some of them have outside contracts to write books and articles and are doing so. Some have had articles that they have worked on while here accepted for publication. In each case of scholars leaving the Center, we think there will be public benefit from the material that they have produced here.

Senator BIBLE. That is exactly where I am. You and I are at the same point now. Once you produce this material and once they leave the Center, because that is where they produced it and that is where they were paid, then what do you do with the papers they produce? You have paper X produced by fellow X. What do you do with paper X, where does it go?

Mr. READ. We have a mailing list that we are compiling for people interested in specific areas of their work.

Senator BIBLE. For example?

Mr. READ. For example, the group of 10 scholars working on ocean questions at the moment, each of them is producing a variety of articles—some on marine pollution, some on security aspects of ocean use, seabed regime proposals, et cetera. Those papers will be distributed to the marine centers around the country, to people that we now know are concerned with those efforts, to the committees on the Hill that are dealing with those matters concerned with it and to people abroad who are working on these problems, because we are not going to be doing any classified work. We will be sending these very widely and on request to interested persons. We are compiling mailing lists now for the ocean studies products.

Senator BIBLE. Some have taken a cue from the Senate committees, at least, who are constantly studying and producing reports and then putting them on shelves and letting them repose there. I would hope that a little more beneficial use comes of them than that, and this would be one of my main concerns. Of course, if you are just barely starting, you certainly don't have a great deal of experience at this stage.

Mr. READ. We do not yet, sir. I hope by next year we will have something to report that will be quite worthwhile.

Senator BIBLE. I think this has a challenging possibility, but I would like to know what happens at the end of the production.

Mr. READ. Right.

GUEST SCHOLARS

Senator BIBLE. Now, how many guest scholar appointments did you say had been made? I think you mentioned that. Did you say nine?

Mr. READ. There are 10.

Senator BIBLE. And you told me they are short term.

Mr. READ. Yes; and for occasional users of the center. They are listed at the end of attachment 1 to my statement.

Senator BIBLE. That probably answers my question; but does that give the amount of the stipend that they receive?

Mr. READ. It does not, sir.

Senator BIBLE. But you tell me that varies, and does not exceed \$23,000 per annum. How long a period of time are they there; 3, 4, 5 weeks?

Mr. READ. The average term for the guest scholars, and we have not computed it—would probably be 2 or 3 weeks, I would think, at the outside. They are short-term visitors, and most of them are not supported by way of stipend in the guest scholar category, unless they are undertaking something specifically at our request that fits in with the work of the fellows themselves. The fellows are the ones who by and large we are supporting, although many of them have sabbatical pay and other pay that is devoted to their support.

Senator BIBLE. I asked this question earlier but I am not quite clear on how the answer came out: What is the difference then between the guest scholar and the fellowship other than time?

Mr. READ. It is essentially time. For instance, if I might just specify the first two people on the list of guest scholars, Prof. Lynton K. Caldwell, environmental expert from the University of Indiana—he stops in perhaps 2 or 3 days a month whenever he is in Washington. He sits with the fellows who are the full-time scholars at the center and discusses with them his work in the environmental field and gets a feedback from what they are doing. There is no stipend involved in Mr. Caldwell's case.

Mr. Aaron L. Danzig, the second man listed, is a senior partner in a law firm on Wall Street. He came in and spent a 3-week period with us last fall working on a model marine pollution code. Again there was no stipend involved in his case. He has also come down for other lectures and seminars.

Senator BIBLE. Do you pay him traveling expenses and living expenses when he comes to Washington from New York City?

Mr. READ. Mr. Danzig has received no funds from the center. In the case of other guest scholars, if they are coming to undertake, at our request, a specific piece of work connected with the work which the fellows are undertaking at the center and it is thought valuable from that viewpoint, yes, we pay expenses and sometimes a little more.

Senator BIBLE. Well, it still seems to be a little up in the blue to me. I have difficulty with pulling it down and completely understanding what contributions are made by the scholar. If I understand you correctly, they come in on specific problems.

Mr. READ. Yes.

Senator BIBLE. And discuss and talk over with the fellows with the idea in mind that that may enrich their end product.

Mr. READ. Yes, sir.

Senator BIBLE. Is that roughly how it works?

Mr. READ. That is correct, sir, and it does help the fellows who are the full-time scholars at the Center who realize that they are lacking certain perspectives, to be able to ask guest scholars who provide those added perspectives to join them. Frequently they do it on a gratis basis and there is no expenditure involved but sometimes we pay travel expenses back and forth.

STIPENDS AND RELATED EXPENSES

Senator BIBLE. Who determines that? Are you the one that determines the stipend?

Mr. READ. No, sir; there is a Fellowship and Guest Scholar Committee of the Board of Trustees, which reviews and passes on all appointments.

Senator BIBLE. If I am guest scholar X, do I write you and say I would like to come down and make a contribution in the field of oceanography and I will come down providing you pay me \$5,000? Do they make the original proposal or do you go out and get these scholars who have expertise in oceanography?

Mr. READ. It is both, but normally they apply. They submit an application to us with the usual references which we check.

Senator BIBLE. That is for qualification. I am primarily interested in the price tag. How do they indicate what they are willing to come down for? Do they just say straight out?

Mr. READ. They say what support they need, and it is a matter of negotiation in all cases after the Board approves an application for a fellowship appointment.

I don't think in the entire guest scholar list, at the moment, more than a few hundred dollars of expenses are involved. These are people who are—

Senator BIBLE. Anxious to share their knowledge?

Mr. READ. Very anxious to share their knowledge and to learn from the people we have there.

Senator BIBLE. Now of course again I recognize you just started out with the Woodrow Wilson Center and have little background and experience, so that probably as you develop this you will be able to be a little more positive on how this is going to work. You are new in the field, of course.

FUNDING

Now did I understand you to say that in fiscal year 1972 your estimate is that you will receive about one-half from outside sources and the other half from the Federal contribution?

Mr. READ. For the support of the fellowship program.

Senator BIBLE. For the support of the fellowship program.

Mr. READ. Yes, sir.

Senator BIBLE. None of that is cranked into the administrative expenses; that is total Federal expenditure?

Mr. READ. That is correct.

Senator BIBLE. Very well.

CENTER ARRANGEMENTS WITH SMITHSONIAN

Now you are occupying quarters in the Smithsonian Institution?

Mr. READ. Yes.

Senator BIBLE. You either said or it was inferred.

Mr. READ. Yes.

Senator BIBLE. Do you pay rent for these quarters?

Mr. READ. We do not. We have in effect made a payment in kind from the appropriations which you provided last year which have permitted us to help furnish the rooms occupied by the Center which were bare when we started.

Senator BIBLE. I see your breakdown on that.

Mr. READ. We have helped to furnish the commons rooms and the meeting rooms which are shared with the Smithsonian.

Senator BIBLE. Do you share utility cost or maintenance cost?

Mr. READ. We are paying out-of-pocket expenses for phones, Xerox use, that sort of thing. There is not as of this time an overhead arrangement with the Smithsonian.

Senator BIBLE. You don't pay them anything for lights or for heat or for air-conditioning, janitorial services?

Mr. READ. That is correct. In this first year and in the fiscal year coming up the understanding is that the other expenditures that we make in the way of furnishings and input which are used in common with the Smithsonian people would be in lieu of overhead. That is the arrangement.

Senator BIBLE. Does the Smithsonian give you any estimate as to what that amounts to in dollars? They must put it in their budget.

Mr. READ. They do have those estimates. I don't have them with me today, but they are available.

Senator BIBLE. Is it material? How much does it amount to?

Mr. READ. I cannot give an accurate figure. The Center occupies the third and fourth floors of the central portion of the old castle.

Senator BIBLE. We can ask them; they will come up within the week before this committee. Maybe that is the correct place to go for the answer.

PROPOSED SCHOLAR SURVEY

Describe the proposed scholar survey about which you speak on page 5 of your justification.

Mr. READ. The part of the legislative history of the Woodrow Wilson Memorial Act, which set up the Center, Senator Bible, was that the Board of Trustees should undertake to find an appropriate permanent site for the Center where a building would be either acquired or built, so that the Center could serve a wider transient scholar population. The city, of course, has many scholars who come through, both from this country and abroad.

During the interim quarter years we have a maximum of 40 scholars that we can accommodate at any one time. The expressed hope was that at a later time, according to the legislative hearings, living arrangements could actually be acquired or erected that would facilitate the problem of the scholar who comes to town and has to find his own quarters and has no information service at his command to lead him to the large and growing intellectual assets of the city including the dozens of libraries, et cetera.

We found when we made the rounds initially in the planning process, that nobody really knows the size of this transient scholarly population in this city or their habits or practices.

The people who run the Library of Congress have rough estimates of their users but they do not have anything that purports to be an accurate profile of the people who come in their doors day to day; nor does the Archives. This survey would be an effort to find out the size and nature of the scholarly community which this Center is meant to serve eventually. What are their habits? Where do they live? Is proximity to the Library of Congress important? The answers to a variety of similar basic questions are not known at the moment from the experience I have been able to gather from the public or private agencies around town.

PERMANENT SITE SELECTION

Senator BIBLE. Now as I understand it you have a committee within the Board of Trustees that is charged with the responsibility of selecting a permanent site.

Mr. READ. We do, sir. It is composed of Mr. Charles Horsky and two other members.

Senator BIBLE. Charles Horsky has been the White House adviser in this connection for many years.

Mr. READ. Yes.

Senator BIBLE. What is the current status of that selection?

Mr. READ. At the moment we are in a hold situation, because the site which the Center was directed to look closely at and report back to Congress on is at 8th and Pennsylvania Avenue, north of the Archives, across Pennsylvania Avenue.

We did an initial feasibility survey a year and a half ago and the costs were simply sky high, and it was quite beyond feasibility to propose building there. However, we think that the issue of whether that location or its immediate environs has any promise for this center will rise or fall with the legislation which the administration has submitted for a Bicentennial Development Corporation Authority to undertake renewal in that entire area.

Senator BIBLE. That is the so-called Pennsylvania Avenue Commission. It is dressed up now under a new name.

Mr. READ. Yes.

Senator BIBLE. It is the same thing, the Willard Hotel and that whole block.

Mr. READ. It is part of it. It would incorporate the Pennsylvania Avenue original plan and additional areas between the Portrait Gallery and the Archives, in its scope.

Senator BIBLE. Then your fate is wrapped up in that Commission?

Mr. READ. Our fate as to whether that site will ever be feasible is wrapped up in what happens to that legislation. It just won't be feasible unless that legislation goes through.

Senator BIBLE. If you are headquartered in the Smithsonian Institution now and you have space there, isn't that adequate for the foreseeable future?

Mr. READ. We are totally comfortable as is; however, the legislative history did direct us to try to serve this broader function for the transient scholar community that comes to town, and we will, of course, only be able to serve that function in a very limited way in those quarters.

Senator BIBLE. The Senator from Illinois.

ORGANIZATION OF CENTER

Senator PERCY. Mr. Chairman, I would like to comment that I spent the weekend out in the Chicago area at a 3-day board meeting at the University of Chicago. I was particularly interested that in the budget for the university, 66 percent of the physical sciences are underwritten by the Federal Government and 11.4 percent of the humanities, arts and so forth. I always felt and hoped when I was a trustee at Cal Tech that the emphasis of the institute and the training of physicists and mathematicians and so forth would be toward making

humanists out of them also. My only contribution there was getting a step up in teaching the humanities, so I am terribly encouraged by this institute.

I would like to commend the organizers of the institute, it is one of the finest boards I think any group could have. The members of the Advisory Committee are most distinguished, not only in this country but in the world. The members of the Advisory Panel to appoint scholars is very distinguished, indeed; and I have no doubt they are not just names, they are working people who believe in what you are accomplishing.

I was particularly pleased with the amount of private funds that have been raised and I think the trustees should be commended for this effort. An outstanding job has been done and I am glad to see that the National Endowment for the Humanities has granted \$48,000.

ARMS CONTROL STUDIES

I have only one question. In quickly going through the scholars' works that they have engaged in there is a tremendous emphasis in oceanography and so forth. I did not find anybody working on arms control. I have searched the board. The distinguished chairman of the Appropriations Committee is here. If we are ever going to find ways to shift priorities in spending to get more money in the cities and the humanities and social sciences and away from just the highly technical areas, we are going to have to begin in the area of reducing our arms race.

Does the Disarmament Agency have enough funds and enough people over there working on this problem to meet the need? How does it happen we don't have one scholar in the Woodrow Wilson Institute working on the problem of reducing the arms race and arms control?

MR. READ. I wish we did, Senator Percy. The general theme of the fellowship program is quite broad enough to encompass such studies. In the luck of the draw of the first applications and nominations received, there simply were not any scholars of highest caliber interested in this field that came our way. I spent a good part of the last 6 years of my life in this field. My own bias is that we should do something in this direction in the next year or two.

SENATOR PERCY. I think it would be good to have that input, and I think it would add to the community's scholars you have there. A certain amount of the discussion would center in that area. I think emphasis on the environment is needed, is important and is in very short supply now, just as we are way overemphasized in astronautics and a lot of other things. Thousands of scientists and technicians are available who are now trying to get jobs as grocery store clerks because there are just too many people in that field. We have certain shortages despite the saturation in other fields.

HEALTH WELFARE STUDIES

Is there anything in the area of health, health welfare, health delivery services that fits at all into the context of your broad charter?

MR. READ. Yes.

SENATOR PERCY. Here again there is a crying need and a great manpower shortage in filling this national need.

Mr. READ. It does fit within the general theme, and I believe we do have pending applications in this area.

In general we receive applications and nominations, Mr. Chairman, year around and try to act on them three times a year, as we are not just open for an academic, 9-month year. We are a year-around center. We do have a large number of applications pending that we are looking at right now.

INVITATIONS TO CENTER DISCUSSIONS

Senator PERCY. You have issued an invitation to members of the committee to visit you. I would like to accept that.

Mr. READ. I hope you will.

Senator PERCY. I would very much enjoy spending a luncheon or an evening sometime to learn more of what you are doing. I think it is one of the most important activities being carried on in Washington today, certainly one of the most instructive. The contribution that you can make over a period of years will be most helpful.

Mr. READ. Thank you.

Senator PERCY. Thank you, Mr. Chairman.

Senator BIBLE. Thank you, Senator Percy. I think the suggestion you make is an excellent one.

Might I suggest to you at certain intervals when you have a discussion that might be of unusual interest that you advise Paul Eaton of this staff and he in turn can advise the committee members.

How long do these discussions last?

Mr. READ. What we have been doing—

Senator BIBLE. Is it an evening session, a day session? Do you meet for an hour in the afternoon? What are the mechanics of it?

Mr. READ. We have discussion hours at noon on Tuesdays and Fridays. Under the present proceedings tomorrow Mr. Clark Clifford will speak.

Senator BIBLE. Do you eat lunch and talk for an hour?

Mr. READ. Talk and have lunch and talk for another hour.

Senator BIBLE. They run from 12 to 3?

Mr. READ. Sometimes they go beyond lunch.

The other procedure is evening discussions when we gather at 4 p.m. and talk for 2 or more hours and then at supper following.

I would be delighted to let Paul Eaton know as soon as those are scheduled.

Senator BIBLE. I wish you would because there might be many members of the committee that would like to come down just to—it sounds like a fraternal bull session, is the closest thing to describe it as. I have never sat in one of these high level discussions but it might be good for all of us. So I wish you would let the staff director know and he in turn can advise the various members of the committee because there may be a Tuesday noon, or is it a Friday evening?

Mr. READ. It is Tuesday noon, Friday noon, and occasional evenings.

Senator BIBLE. Why don't you advise him of the scheduling and maybe you will pick up a Senator now and then who will come down and listen to your discussions.

Mr. READ. You are most welcome.

Senator BIBLE. Senator Ellender.

ADMINISTRATIVE EXPENSES

Chairman ELLENDER. In glancing over your budget I notice that you spend almost a third of it for administration and a director, deputy director, administrative officer, librarian, information center officer, 10 secretaries for the fellows and guest scholars and so forth.

Have you any teachers there?

Mr. READ. No, sir; we do not on the staff. The center is not a degree-granting or credit-granting educational institution in the normal sense. These are many professors present as scholar/fellows.

Chairman ELLENDER. How many scholars attend these seminars?

Mr. READ. Virtually all of the center fellows and guests.

Chairman ELLENDER. I said how many?

Mr. READ. How many, sir?

Chairman ELLENDER. Yes.

Mr. READ. We have 29 full time scholars at the center.

Chairman ELLENDER. What do they do there, these 29, discuss among themselves and with you the problems of the world or what?

Mr. READ. They have general and specialized discussions which have just been referred to, and they are each engaged in their own individual study project which has been submitted to the Board and on which they are writing monographs, articles, and books.

Chairman ELLENDER. Who benefits from this, mainly the scholars?

Mr. READ. I hope mainly the public.

Chairman ELLENDER. How?

Mr. READ. Each of the scholarly products, Senator Ellender, will be published in some form. Many of them have articles which have been accepted for publication already. In addition when they accepted appointments they were told not to do so unless they were willing to share with the public and with their colleagues at the Center and a broader audience their findings and conclusions as they went along.

Chairman ELLENDER. There is a Director that you pay \$35,500; a Deputy Director, an Administrative Officer, Librarian, Information Center Officer. Why so many for just 29 scholars?

Mr. READ. The Librarian I guess is self-explanatory.

Chairman ELLENDER. I understand that.

Mr. READ. My own job and that of the Deputy Director have been divided between fund raising chores, administering the Center and setting the schedule for the programs and processing the applications. At peak periods we are receiving three or four applications and nominations a day, and unhappily the paper work of reaching fair judgments on those applications is rather heavy.

Chairman ELLENDER. I notice you have an item here for Permanent Site Selection Survey. I came in late and you may have discussed it, but what does that mean?

Mr. READ. That is an effort to answer the part of the legislative history creating the Center which said that the Board should attempt to find a permanent site for the Center where it could service more of the scholars who come through town, the transient scholarly population which come to Washington for a longer or shorter period of time. We have not been able to find a site which we would be willing to recommend to Congress as of this point.

Chairman ELLENDER. What would this site consist of, what would you have?

Mr. READ. The idea as presented to the Authorization Committee was a site which would be both offices where the scholars would work, meeting rooms, et cetera, and dormitory and living quarters. At least this is the concept which was presented to the Authorization Committee.

Chairman ELLENDER. To what extent have you been able to obtain funds from private endowments?

Mr. READ. We have been able to raise the sum listed on attachment No. 5. to my statement, sir.

Chairman ELLENDER. I regret I was not here.

Mr. READ. \$288,000.

Chairman ELLENDER. How much?

Mr. READ. \$288,000 as of March 1 from all sources.

Chairman ELLENDER. That is \$288,000 and then the difference between \$351,000 which is for administration. On page 5 I notice \$142,000 furnishings and equipment. What is the rest of this money to be used for? That is, the \$683,000 which appears to be your estimate for 1972.

Mr. READ. Yes, sir. Of that \$351,000 we are requesting for administrative purposes, \$209,000 would be for salaries and expenses of the five substantive and 11 clerical people; \$142,000 would be for the other expenses which are itemized in the justification on page 4, such as supplies.

Fortunately we have been able to get almost all of our furnishings this year, thanks to the appropriation of last year. We do have a few additional items we have had to put over and additional library expenses. We are spreading the acquisition costs for the modest reference library that we are building over a 3-year period.

Chairman ELLENDER. Your budget presentation requires about half for administration. What is the rest of the money used for?

FELLOWSHIP EXPENSES

Mr. READ. The rest, sir; is for the support of the fellowship program.

Chairman ELLENDER. Are these scholars given a stipend to come?

Mr. READ. Yes, sir; they are. The principle which the board agreed to was that in every instance the scholars would be asked first to apply their sabbatical or leave pay, if they had any, toward their support while here. Second, we ask them to go out and attempt to seek foundation or other outside support where there is a well-developed study project. Above and beyond that we attempt to bring them up to the preceding year's earned income on a no gain-no loss basis within obvious limits. Naturally cost-of-living adjustments are given to non-U.S. scholars. The top stipend the board authorized is \$30,000, and it has not gone that high to date in the case of any stipend paid by Federal appropriations.

The average stipend we have been told to expect is about \$23,000 per person per annum based on the experience of other scholar centers around the country. When we bring them in from around the world, of course, travel expenses become a factor also, but those are the averages on which we have based our stipend estimates.

Since we have only 5 months of experience to date, I am not certain that our own experience will corroborate or modify the estimates. We should know next year. I think we made a very systematic effort to try to get the experience of other centers that are doing like things, and we based our estimates on that experience.

Chairman ELLENDER. Where have you been conducting these seminars? Who owns the property in which these seminars are conducted?

Mr. READ. We are in the old Smithsonian Institution Building on the Mall, the red stone castle.

Chairman ELLENDER. Is the upkeep and maintenance contained in these administrative expenses that you are talking about?

Mr. READ. Yes, in part.

ADMINISTRATIVE COSTS

Chairman ELLENDER. With the number of scholars you have at the moment and the money you spend, I think the administrative cost is rather high.

That is all, Mr. Chairman.

Senator BIBLE. Do you care to comment on the statement of the chairman? It does seem to be a pretty high ratio for that limited number of scholars.

Mr. READ. Well, let me point out that in addition to the 29 fellows appointed to date, other fellows will be added and still others served as guest scholars. We will probably have had about 60 scholars working at the center altogether by the end of our first year.

What we have done with the clerical staff is to average four to five scholars per secretary which is about the ratio which has been used at Palo Alto, Cambridge, Wesleyan, and other scholar centers. We have found that it works fairly well, and these girls are very fully employed, I can assure you.

The library demands of the scholars are enormous. We have an interlibrary loan acquisition list each day which is not easy to come by and to acquire.

We find the processing of the three or four applications received daily is an immense undertaking. Unfortunately, it frequently requires as much time and thought to reach a fair but negative judgment as to build a successful file. I think our staff-scholar ratios are in line with the other centers that are attempting to do this sort of thing. If I saw a way of cutting, I would do it, but we are flat out at the moment.

Chairman ELLENDER. Who does the processing?

Mr. READ. We have a staff of five substantive officers, sir.

Chairman ELLENDER. What is that?

Mr. READ. We have five substantive officers of the Center. Other than the librarian, there are four of us who all take a hand in this processing of the applications and nominations.

Chairman ELLENDER. Well, you have here, as I said, a Director, Deputy Director, Administrative Officer, Information Center Officer,

Mr. READ. Those are the ones who undertake this process with me, sir, and together with the fundraising chores which have—

Chairman ELLENDER. Do the 10 secretaries take dictation from the scholars?

Mr. READ. They do, sir.

Chairman ELLENDER. Then the scholars produce their own books or papers?

Mr. READ. They assist the scholars. If there is a major manuscript, we sometimes have to farm it out. The secretaries take care of the day-to-day writings of the scholars and dictation needs.

PUBLICATIONS

Chairman ELLENDER. I don't suppose you have had many papers issued up to now, have you?

Mr. READ. No, but a large number of manuscripts are in varying stages of acceptance for publication.

Chairman ELLENDER. To what extent have these papers been distributed to the public?

Mr. READ. Well, at the moment they are just not at the stage to do that but they will be published, of course.

Senator BIBLE. You have only been operating about 5 months, is that right?

Mr. READ. Four and a half.

Senator BIBLE. Four and a half or 5 months, and of course they will not be distributed immediately. It will take time.

A little earlier I developed questions in that same general area because I was interested primarily in what happened to these scholarly works after they were finished. They are produced and they are circulated and they go to various depositories around the country.

FUNDING

Chairman ELLENDER. For fiscal year 1971 you had \$750,000 appropriated. How much money did you collect aside from that?

Mr. READ. Well, as of the moment—

Chairman ELLENDER. I mean for fiscal year 1971.

Mr. READ. The Office of Management and Budget apportioned only \$620,000 of the \$750,000, Senator Ellender, but above and beyond that we have been able—

Chairman ELLENDER. Does the rest of it go back to the Treasury?

Mr. READ. Those were no year funds which will be released on the first of July.

Chairman ELLENDER. So that this year you will have \$130,000 plus \$683,000?

Mr. READ. That is correct, sir.

Chairman ELLENDER. Thank you.

Mr. READ. And we have raised \$288,000 from private sources.

Chairman ELLENDER. Thank you.

Senator BIBLE. Well, some evening, Senator Ellender and I may come down and visit you.

Thank you very much, Mr. Read.

Mr. READ. Thank you, Mr. Chairman.

DEPARTMENT OF THE INTERIOR AND RELATED AGEN- CIES APPROPRIATIONS FOR FISCAL YEAR 1972

FRIDAY, MARCH 19, 1971

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 10:30 a.m., in room 1114, New Senate Of-
fice Building, Hon. Alan Bible (chairman) presiding.
Present: Senator Bible.

SMITHSONIAN INSTITUTION

STATEMENT OF S. DILLON RIPLEY, SECRETARY

ACCOMPANIED BY:

JAMES BRADLEY, UNDER SECRETARY
CHARLES BLITZER, ASSISTANT SECRETARY FOR HISTORY
AND ART
DAVID CHALLINOR, ACTING ASSISTANT SECRETARY FOR
SCIENCE
WILLIAM W. WARNER, ASSISTANT SECRETARY FOR PUBLIC
SERVICE
T. AMES WHEELER, TREASURER
JOHN F. JAMESON, DIRECTOR, OFFICE OF PROGRAMMING AND
BUDGET
RICHARD S. COWAN, DIRECTOR, NATIONAL MUSEUM OF NAT-
URAL HISTORY
DANIEL J. BOORSTIN, DIRECTOR, NATIONAL MUSEUM OF HIS-
TORY AND TECHNOLOGY
FRED L. WHIPPLE, DIRECTOR, SMITHSONIAN ASTROPHYSICAL
OBSERVATORY
THEODORE H. REED, DIRECTOR, NATIONAL ZOOLOGICAL PARK
ABRAM LERNER, DIRECTOR, JOSEPH H. HIRSHHORN MUSEUM
AND SCULPTURE GARDEN
MICHAEL COLLINS, DIRECTOR, NATIONAL AIR AND SPACE
MUSEUM
MONROE E. FREEDMAN, DIRECTOR, SCIENCE INFORMATION
EXCHANGE

Senator BIBLE. The hearing will come to order.

This is the time set for the hearing on the Smithsonian Institution budget. We have Mr. Ripley with us this morning.

There will be placed in the record the general statement submitted with the budget justification for the Smithsonian Institution, together with a number of other statements furnished which contain information about this agency.

(The statements follow:)

(1965)

SMITHSONIAN INSTITUTIONFISCAL YEAR 1972 ESTIMATES OF APPROPRIATIONSGENERAL STATEMENT

This past year has been one of measured progress for the Smithsonian Institution. Where many of the prospects of the nation seem fraught with dissent and division, where the path of education has become obscured by the divisiveness which has beset the academies, the smaller private institutions of learning seem to have survived so far relatively unscathed. Like other institutions concerned with research and study, however, the Smithsonian suffered in the past year from the general decline in support for science as well as to related areas of study. Our problem with the declining government budgets for the support of basic science has been compounded by the tax reform act which produced a serious paralysis of will on the part of the foundations. In addition, the steadily worsening effects of inflation on the costs of personnel, research equipment, objects for the collections, as well as on the everyday supplies and materials for general museum and laboratory operations further threaten the Smithsonian's ability to carry out its traditional responsibilities.

One encouraging development has been a widening awareness that the Smithsonian's activities represent a kind of unity. In spite of the many bureaus, some of them incorporated in large buildings on the Mall and others located in laboratories in Washington and elsewhere, there are a series of unifying themes which run through the Institution's activities. Our concerns remain united around the general subject of history: history of art, science, and technology including the history of air and space flight, and the delineation of these histories through public exhibition. In addition, our science activities revolve generally around the compilation of statistics, information, and research about the biosphere and space. Our classical concerns in natural history and in astrophysics have come full circle so that today we can proudly claim our work to be of vital importance in the new sciences of the study of the environment on the one hand and of outer space on the other.

Within these common themes there are overriding considerations for the public good. Education and public exhibition are of paramount concern for all our main buildings and for the curators and the research staff who inhabit them. Education through research and publication remains paramount in the other bureaus whose activities are not contained in the large public buildings. In addition, Joseph Henry's initial concern with bringing scholars together with colleagues in foreign countries continues to be developed and encouraged through our foreign currency program as well as research activities both here and abroad.

In Joseph Henry's view the Smithsonian existed to stimulate research in pursuit of new truths and to make these available to both the public and to professionals, in the arts, sciences, and cultural history. His favorite phrase to describe the Institution's ultimate aim was a "College of Discoverers." This is still the unifying force, the common factor in all the diverse bureaus and museums of the Smithsonian--the Institution as a "College of Discoverers" which:

- First, keeps records of knowledge through its collections;
- Second, serves as a stimulus to research largely through its collections;
- Third, and perhaps most important, uses the collections and the results of research for public education.

These three elements may be found to a greater or lesser degree in all the bureaus of the Smithsonian, as they are today.

Increasingly, the Institution's bureaus and offices are engaged in common efforts. Notable among these are the contributions that will be made in the national celebration of the American Revolution Bicentennial and in studies of the environment. We have begun to lay-out long range plans for ecological assessments in both the New World temperate and tropical zones and in the Old World. We are uniquely equipped through processing and working with the National Collections to contribute to solutions, but we are pitifully undersupported financially to make our contributions effective.

In spite of appropriation increases each year, which have averaged somewhere between 6 and 8 percent, costs have continued to escalate so much that our scientists' work and our research and exhibits potential have been seriously undermined. Little has been allowed for growth, expansion and change, so necessary for a healthy concern, be it a corporation, university, or a research and museum complex. Examples of such needs are continuing additions to art, history, and science collections, modern inventory computerization for these collections, and development of new experimental ideas and fields of study.

While vigorously seeking additional federal fund support for these purposes, we are at the same time carrying out a program of self-examination of the use of our total resources with the objective of reducing or eliminating outmoded or low-priority activities.

Planning is of the utmost importance in all Smithsonian activities. Growth must be brought into effective relation to the availability of resources, especially for an establishment such as ours with more than forty line items in our federal budget, each of which could very readily be expanded to meet some external or internal need. We are strengthening the planning function within the Institution to maintain a balance between our pattern of commitments and the resources we may expect. It has been our judgement, however, that the Institution would have to inaugurate some new programs and achieve order-of-magnitude increases in some support activities in order to function successfully for the 1970s. With inflation, the requirements for new tools and techniques, and the ever-increasing demands placed on our staff, our budget meets no more than one-half of our requirements. The elimination of remaining shortages is a priority objective in our planning, for the next several years.

The central concerns of the Smithsonian represent national needs for the kind of sustained commitment that can be made only by an institution with a strong sense of continuity, tradition, and concentrated purpose. We believe that our first responsibility is to continue the general lines of endeavor which are traditional with the Institution: basic research in selected areas of national interest; development and maintenance of the national collections in biology, anthropology, history, and the arts; and enlightenment of the public through exhibitions and related activities.

In order to meet this responsibility, an overriding concern must be the quality of the professional staff effort within the Smithsonian. We cannot too strongly emphasize the achievement of an adequate level of support of that effort. We have repeatedly appealed for the remedy of deficiencies in support of research and scholarly programs. Virtually half of the growth in appropriations since 1964 has been devoted to staffing and operating new facilities authorized by the Congress. Much of the rest has been negated by inflation. A strong effort must now be made to sustain the basic scholarly program: support for fieldwork, instruments, libraries, conservation, automatic data

processing, technician support, related higher and elementary and secondary education activities, better access to colleagues through scholarly publishing, and unremitting emphasis on the professional character of staff appointments, all against a background of increasing costs. Our budget henceforth will proceed on two tracks, the first a phased elimination of these shortages and the second to provide for the continued development of programs entrusted to us by the Administration and the Congress. Several of these are identified in the following paragraphs.

Beginning this year the observance of the Bicentennial of the American Revolution will become a predominant factor in the development of Smithsonian programs. Within the settings of our history and art museums members of the public may seek a reappraisal of our national experience with due reference to its international setting. Fresh insights of historians should be interwoven with superb offerings of objects and art works that portray our nation's course over the past two centuries and suggest paths for our continued development.

From the studies of the sources of energy and means for its use by living systems to the explanation of biological diversity, the Smithsonian represents an unexcelled multidisciplinary array of information resources and professional scientists which bear upon critical needs to improve our understanding of the physical environment upon which human society depends. We anticipate increasing demands upon our efforts in systematic biology, anthropology, astrophysics, and environmental studies as important resources for the national effort in environmental improvement.

One of the most important unfulfilled hopes for the Smithsonian is that a great national museum might be developed on the authorized space on the Mall to recreate the experience of man's greatest adventure: flight and space exploration. We also aspire to present insights about the significance of the space age for everyday life and to communicate an understanding of the scientific discoveries originating from space exploration.

The birthright of today's citizen is an understanding of the forces shaping himself and his world. It is to museums that many people look for access to the works of artists, an appreciation of the past, an awareness of the scientific view of nature, and for portents of the future. All museums must experiment with new techniques of exhibition and embark upon training and research aimed at improving their effectiveness in popular education. The quality of our response to this democratic vista will continue to be a matter of overriding concern to the Smithsonian in years to come. Implementation of the National Museum Act through adequate funding will greatly strengthen the capability of all museums.

From the amassing of great national collections will arise difficult questions about how to guarantee access to the information they contain. This will call for innovative designs of indexes, catalogs, and ways to manage vast resources of information. Perhaps some of the techniques developed for the management of voluminous flows of data from satellite observations or oceanographic stations may be adapted to the needs of the future. In our role as custodian of the nation's collections we must try to serve the public interest in improved management of scientific and scholarly information.

The fiscal year 1972 appropriation estimates are designed to help correct many of the problems identified and to improve the Institution's capabilities in other areas. We are convinced that only by obtaining the requested additional resources can the Smithsonian meet the future of the decade.

The estimates are presented in four sections:

- A. "Salaries and Expenses"
for regular operating programs in the museums,
galleries, research laboratories, and program
support units.....\$41,529,000
- for special programs of an Institution-wide nature
and of unusual importance for national research and
public education needs 3,475,000
- B. "Salaries and Expenses" for Science Information
Exchange as a separate appropriation account in
recognition of the unique service nature of this
organization..... 1,400,000
- C. Special Foreign Currency Program in archeology and
related disciplines, systematic and environmental biology,
astrophysics, and museum programs..... 5,500,000
- D. Restoration and construction of Smithsonian buildings and
facilities..... 6,847,000

Each of these requests is summarized below. The estimates of the Woodrow Wilson International Center for Scholars are separately presented by its Board of Trustees.

A. "Salaries and Expenses"
Regular Operating Programs

<u>1970 Actual</u>	<u>1971 Estimate</u>	<u>1972 Estimate</u>
\$28,993,000	\$34,783,000	\$41,529,000

The total increase requested for "Salaries and Expenses" for regular operations is \$6,746,000. Included in this amount is \$1,154,000 for mandatory pay and related benefits commitments, largely for current staff, that will fall due in fiscal year 1972 and are relatively uncontrollable. This increase is distributed as followed:

(In thousands of dollars)

<u>1971</u>	<u>Requested</u>	<u>1972</u>
<u>Base</u>	<u>Increase</u>	<u>Estimate</u>
\$12,306	\$3,791	\$16,097

Science

To correct serious deficiencies in the availability of technicians and other supporting staff, scientific equipment, laboratory supplies and materials, and key professional research staff in order that the Institution can continue its traditional basic investigations and educational services in anthropology, biology, geology, and the space sciences which are fundamental to a better understanding of the environment. Includes requests for the National Museum of Natural History, the Smithsonian Astrophysical Observatory, Smithsonian Tropical Research Institute, Radiation Biology Laboratory, Office of Environmental Sciences, National Air and Space Museum, Center for the Study of Man, Center for Short-Lived Phenomena, and the National Zoological Park.

1970

	1971 Base	Requested Increase	1972 Estimate
	(In thousands of dollars)		
<u>History and Art</u>	\$4,801	\$1,245	\$6,046
To provide essential support staff and the routine services, supplies, and equipment required for basic operations in order that the established and developing museums and art galleries of the Smithsonian can effectively tell the story of American civilization to millions of visitors annually. Includes the budgetary requirements of the National Museum of History and Technology, National Collection of Fine Arts, National Portrait Gallery, Joseph H. Hirshhorn Museum and Sculpture Garden, Freer Gallery of Art, Archives of American Art, and the National Armed Forces Museum Advisory Board.			
<u>United States National Museum</u>	3,120	183	3,303
To improve the documentation and conservation of the National Collections. Includes requests for the Office of Museum Programs, Office of Exhibits, Conservation Analytical Laboratory, and the Office of the Registrar.			
<u>Public Service</u>	807	118	925
To furnish additional capabilities to certain of those Smithsonian's activities which reach out to serve a wide public. Requests are included for the Anacostia Neighborhood Museum, the Office of International Activities, International Exchange Service, Division of Performing Arts, and the Office of Public Affairs.			
<u>Program Administration and Support</u>	4,478	602	5,080
To allow the central services to give adequate administrative and technical support to the museums, galleries, and laboratories. Includes requests for the Offices of the Secretary, General Counsel, Treasurer, and Personnel, and for the Smithsonian Press, Libraries, Information Systems Division, and other important support units.			
<u>Buildings Management</u>	9,271	807	10,078
To provide adequate maintenance, operation, and protection services in support of the Institution's research, collections' management, and public education services.			
Totals	<u>\$34,783</u>	<u>\$6,746</u>	<u>\$41,529</u>

Special Programs

<u>1970 Actual</u>	<u>1971 Estimate</u>	<u>1972 Estimate</u>
\$972,000	\$1,549,000	\$3,475,000

This request is aimed at strengthening the Smithsonian's abilities to perform ecological research of national significance, present important and timely exhibitions, and extend its public education services. Included are requests for program funding for the Environmental Sciences, the American Revolution Bicentennial, the National Museum Act, a Major Exhibition on the World of Living Things, Academic and Educational Programs, and the Research Awards Program.

B. Science Information Exchange

<u>1970 Appropriation</u>	<u>1971 Appropriation</u>	<u>1972 Estimate</u>
\$ 1/	1/	\$1,400,000

A separate appropriation account is requested to enable the Institution to both manage and fund the Science Information Exchange as a national information service to the federal and nonfederal research community.

1/ Funded under contract with the National Science Foundation at an annual rate of \$1,600,000

C. Special Foreign Currency Program

<u>1970 Appropriation</u>	<u>1971 Appropriation</u>	<u>1972 Estimate</u>
\$2,316,000	\$2,500,000	\$5,500,000

The need is to provide adequate support, without any dollar drain to the nation, for overseas archeological work, systematic and environmental biology, astrophysical studies, and museum programs of benefit to American institutions of higher learning. Ongoing research, based on a broadened authority to employ these excess foreign currency funds, now consumes the entire appropriation (funding for many ongoing projects has had to be reduced). New demand, however, spurred by diminishing dollar support of basic research and by greater research opportunities abroad is steadily climbing.

D. Restoration and Construction

<u>1970 Appropriation</u>	<u>1971 Appropriation</u>	<u>1972 Estimate</u>
\$4,625,000	\$7,125,000	\$6,847,000

Included in this request are \$200,000 to continue to make essential repairs to existing buildings and facilities at the National Zoological Park; \$1,050,000 for the restoration and renovation of Smithsonian buildings, including completing the Renwick Gallery of Art, providing Bicentennial facilities on the National Museum of History and Technology, and other projects; \$3,697,000 to liquidate the balance of the Hirshhorn construction authority; and \$1,900,000 for the redesign of the National Air and Space Museum.

Total 1972 Appropriations Requested \$58,751,000

"SALARIES AND EXPENSES"

Report on the Number of Permanent Positions by Organization Unit

	1970 <u>Actual</u>	1971 <u>Estimate</u>	1972 <u>Estimate</u>	Increase 1972 over 1971
National Museum of Natural History	258	271	349	78
Smithsonian Astrophysical Observatory...	57	57	57	0
Smithsonian Tropical Research Institute	40	45	57	12
Radiation Biology Laboratory.....	36	40	46	6
Office of Environmental Sciences	23	34	42	8
National Air and Space Museum	41	41	44	3
Center for the Study of Man.....	6	7	10	3
Center for Short-Lived Phenomena.....	0	1	4	3
National Zoological Park.....	0	249	297	48
Museum of History and Technology	158	158	157	-1
National Collection of Fine Arts.....	59	70	72	2
National Portrait Gallery.....	30	37	38	1
Joseph H. Hirshhorn Museum and Sculpture Garden	13	18	21	3
Freer Gallery of Art	7	7	8	1
Archives of American Art.....	0	0	11	11
National Armed Forces Museum Adv. Bd.	8	8	6	-2
Office of Museum Programs.....	7	9	9	0
Exhibits.....	167	167	164	-3
Conservation Analytical Laboratory	11	11	14	3
Registrar.....	29	29	30	1
Anacostia Neighborhood Museum.....	9	11	15	4
Office of International Activities.....	8	8	9	1
International Exchange Service	9	9	9	0
Performing Arts.....	7	7	7	0
Public Affairs.....	12	12	12	0
American Revolution Bicentennial.....	0	2	2	0
Environmental Sciences Program.....	0	3	8	5
Major Exhibitions.....	0	0	0	0
National Museum Act	0	0	3	3
Academic & Educational Programs.....	18	20	23	3
Research Awards.....	0	0	0	0
Secretary.....	38	38	40	2
General Counsel.....	8	8	9	1
Treasurer.....	31	31	33	2
Personnel.....	26	28	29	1
Libraries	49	54	63	9
Press.....	23	25	25	0
Information Systems Division.....	13	14	16	2
Archives.....	6	6	6	0
Photographic Services Division	20	20	20	0
Supply Division.....	21	21	21	0
Administrative Systems Division.....	9	9	9	0
Duplicating.....	7	7	7	0
Other Central Support.....	13	13	13	0
Buildings Management Department	748	768	793	25
Woodrow Wilson International Center for Scholars.....	8	0	0	0
Total	2,033	2,373	2,608	235

Report of Obligations by Objects

	1970 Actual	1970 Estimate	1972 Estimate	Increase or Decrease(-) '72 over '71
11 Personnel Compensation ..	\$20,631,000	\$25,126,000	\$28,000,000	\$2,874,000
12 Personnel Benefits.....	1,564,000	1,942,000	2,177,000	235,000
21 Travel & Transportation of Persons.....	313,000	329,000	527,000	198,000
22 Transportation of Things..	210,000	180,000	253,000	73,000
23 Rent, Communications, and Utilities.....	1,889,000	2,349,000	2,656,000	307,000
24 Printing and Reproduction.	597,000	885,000	1,095,000	210,000
25 Other Services.....	2,397,000	3,297,000	5,376,000	2,079,000
26 Supplies and Materials....	1,048,000	1,204,000	1,763,000	559,000
31 Equipment.....	1,355,000	1,012,000	3,134,000	2,122,000
41 Grants.....	8,000	8,000	23,000	15,000
Total Obligations	\$30,012,000	\$36,332,000	\$45,004,000	\$8,672,000

Appropriation Adjustments:

Receipts and Reimbursements from Federal Funds.....	-61,000	0	0	0
Unobligated balance lapsing...	14,000	0	0	0
<u>Appropriation or estimate....</u>	<u>\$29,965,000</u>	<u>\$36,332,000*</u>	<u>\$45,004,000</u>	<u>\$8,672,000</u>

* Includes anticipated supplemental
of \$1,630,000.

Smithsonian Institution Current Building Program

<u>Project</u>	<u>Est. Total Cost</u>	<u>Appropriated to Date</u>	<u>Fiscal Year 1972 Request</u>
Construction and Improvements, National Zoological Park	\$20,000,000 (depending on redesign)	\$8,703,000	200,000 ^{1/}
Restoration and Renovation of Buildings	Continuing Program	8,323,000	1,050,000 ^{2/}
Construction, Joseph H. Hirshhorn Museum and Sculpture Garden	15,000,000 ^{3/}	11,303,000	3,697,000 ^{4/}
Construction, National Air and Space Museum	44,775,000 (depending on redesign)	1,875,000	1,900,000 ^{5/}

1. Buildings and facilities repair and maintenance.
2. Renwick Gallery completion (\$400,000) planning and design of Bicentennial facilities and exhibits on the History and Technology Building (\$500,000), sewer system improvements (\$125,000), and library improvements at Lamont Street (\$25,000). Total estimated cost of Bicentennial facilities is \$4,500,000.
3. Excludes \$200,000 for relocation of the Armed Forces Institute of Pathology and \$1,000,000 legally committed by Mr. Joseph H. Hirshhorn for construction.
4. Liquidation of contract authority of \$14,197,000 provided in fiscal year 1969 appropriation act.
5. Building planning and redesign.

SMITHSONIAN VISITORS
(by fiscal year)

Fiscal Year	Smithsonian Institution Building	Arts and Industries Building	Museum of Natural History	National Air and Space Building	Freer Gallery of Art	Museum of History and Technology	Fine Art and Portrait Galleries	Total ^d
1961	1,024,526	2,912,371	2,047,973	907,853	130,746	e	c	7,103,474
1962	1,222,112	3,471,050	2,113,053	1,936,319	130,597	a	c	8,923,131
1963	1,630,280	3,534,182	2,238,397	2,673,618	183,359	a	c	10,309,836
1964	1,311,061	2,457,243	2,512,306	1,854,186	168,625	2,509,774 ^a	c	10,813,195 ^b
1965	1,065,635	2,028,175	3,051,472	1,705,683	210,972	5,091,776	c	13,153,713
1966	870,010	1,746,715	2,988,006	1,494,922	222,089	4,829,112	c	12,150,854
1967	1,020,312	1,638,873	3,409,957	1,484,422	212,920	5,546,102	c	13,312,586
1968	847,176	1,344,622	3,257,957	1,123,698	169,533	4,750,023	30,888	11,523,899 ^d
1969	275,259 ^e	1,493,141	2,916,749	1,225,959	179,374	4,174,071	166,177	10,430,730 ^g
1970	e	2,557,155 ^f	3,269,791	1,839,373	217,305	5,483,555	216,523	13,583,702 ^h

a Museum of History and Technology opened January 1964.

b July-August 1964, certain Smithsonian Institution buildings were open 4:30 to 10 p.m. for the first time.

c National Collection of Fine Arts opened May 1968, and the National Portrait Gallery in October 1968.

d Reflects the significant decrease in visitors to the Nation's Capital in the first six months of CY 1968, due to unsettled local conditions.

e Building closed for renovation October 1968.

f Since the first display of the lunar sample in September 1969, visitors to this building have averaged approximately 213,000 per month.

g Fiscal year 1969 visitor totals represent the effect of local conditions in late 1968 on visitor attendance. During CY 1969, a total of 12,438,909 visitors came to the Smithsonian, an increase of 25 percent over CY 1968.

h Reflects a significant increase of 30 percent in visitors to the Smithsonian's museums and galleries.

j An additional 5,000,000 visitors visit the National Zoological Park annually, and 50,000 to the Anacostia Museum.

SIGNIFICANT EXHIBITS, FISCAL YEAR 1970

Natural History Building

John Wesley Powell: The Indomitable Major	Malay Archipelago
Smithsonian Science Illustrators	Amnard Hammer Exhibit
Bengal Tiger	A Heritage in Peril - Alaska's
Dead Sea Scrolls, Parts I and II	Vanishing Totems
Daco-Roman Traces in Romania	Studies of South African Costumes

Arts and Industries Building

Contemporary Black American Artists	Louis Corinth
British Designer Crafts	Moon Rock
Yugoslavian Tapestry & Graphics	Toledo Glass
Urban Transit	Johannes Gutenberg
Apollo Art	Art Protis
White House Press Photographers	Polish Folk Art

History and Technology Building

Historical machinery and products	"The Roots of California Culture"
of the American textile industry	"Women and Politics"
Energy Conversion	"Laser 10"

Fine Arts and Portrait Galleries

Retrospective of the work of	Tibetan Art
Milton Avery	Winslow Homer
"Explorations"	Paintings and sculpture from the 1930s
Mid-career retrospective of	Augustus Saint-Gaudens: "The
Leonard Baskin	Portrait Reliefs"

Cooper-Hewitt Museum of Decorative Arts and Design

"Kabuki Prints"	Posters by E. McKnight Kauffer
Contemporary Japanese Posters	1890-1965
A Stately Pleasure Dome:	Contemporary Drawings by New York
"The Royal Pavilion at Brighton"	Artists
Light and Line: Etchings by Rembrandt	India Chintz

Smithsonian Institution Traveling Exhibitions

The exhibits originated at the Smithsonian with Smithsonian collections and were planned and produced by Smithsonian programs.

Jean Louis Berlandier	Werner Drewes Woodcuts
Photography and The City	The People's Choice

Performing Arts

Folk Festival on the Mall - Third Annual Event

Anacostia

The Rat: Man's Invited Affliction	"The Douglass Years" Frederick Douglass
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CONTRACTS AND GRANTS TO THE SMITHSONIAN INSTITUTION
Fiscal Years 1970 and 1971

<u>Contracts</u>	<u>1970</u>	<u>1971</u>	<u>Grants</u>	<u>1970</u>	<u>1971</u>
	<u>National Aeronautics and Space Administration</u>				
Interdisciplinary Communication	\$ 199,606	\$ 155,379	Satellite Tracking Program...	\$1,635,000	\$2,100,000
Radio Meteor Research.....	500,839	300,000	Recovery of Meteorites.....	130,000	150,000
Celestcope	747,000	900,000	Miscellaneous	155,000	275,000
Barium Cloud Experiments	132,000	201,603			
Miscellaneous	300,000	400,000			
	\$1,879,445	\$1,956,982		\$1,920,000	\$2,525,000
	<u>Department of Defense</u>				
Mosquitoes in Southeast Asia...	\$ 161,895	\$ 170,000			
Diseases in Overseas Areas...	119,300	73,580			
Mammalian Parasites	100,937	95,999			
Mediterranean Biological Studies	0	133,068			
Ocean Acre	38,505	0			
Miscellaneous (Dept. Army) ...	100,000	175,000			
Miscellaneous (Dept. Navy)....	95,000	125,000			
	\$ 615,637	\$ 772,647			
	<u>Department of Health, Education, and Welfare</u>				
Drug Exhibit	\$ 87,538	\$ 40,000	Human Osteon Chemistry	\$ 41,124	\$ 35,069
			Interdisciplinary Exploration	94,097	86,000
			of Carcinogenises Problems		
				\$ 135,221	\$ 121,069
	<u>Atomic Energy Commission</u>				
Protein Properties.....	\$ 15,634	\$ 15,634			
Radiation & Plant Metabolism..	70,000	70,313			
	\$ 85,634	\$ 85,947			

<u>Contracts</u>	<u>1970</u>	<u>1971</u>	<u>Grants</u>	<u>1970</u>	<u>1971</u>
			<u>National Science Foundation</u>		
Processing Antarctic Collections	\$ 136,862	\$ 142,297	Study of Neotropical		
Science Information Exchange ..	1,637,367	1,600,000	Phanerogams	\$ 38,500	\$ 0
Miscellaneous	18,000	25,212	Papers of Joseph Henry	30,000	30,000
			Undergraduate Research		
	\$1,792,229	\$1,767,509	Program	24,910	0
			Miscellaneous	121,191	291,290
				\$ 214,601	\$ 321,290
			<u>National Institutes of Health</u>		
Miscellaneous	\$ 60,000	\$ 65,000			
			<u>Department of the Interior</u>		
Oil Pollution	\$ 79,375	\$ 60,000			
Water Pollution Control	86,500	75,000			
Miscellaneous	35,000	50,000			
	\$ 200,875	\$ 185,000			
			<u>Department of State - A. I. D.</u>		
McKong Basin Project	\$ 149,276	\$ 150,000			
Int'l. Environment Assess. ...	98,370	100,000			
Miscellaneous	0	10,000			
	\$ 247,646	\$ 260,000			
			<u>Other</u>		
			Miscellaneous	\$ 30,000	\$ 50,000
Total, Contracts	\$4,969,004	\$5,133,085	Total, Grants	\$2,299,822	\$3,017,359

INTRODUCTION OF ASSOCIATES

Senator BIBLE. Introduce those with you at the witness table.

Dr. RIPLEY. Thank you, Mr. Chairman.

I would like to introduce those first who are here today with us, and who may be from time to time joining me in testifying before your committee.

Senator BIBLE. Very well, proceed.

Dr. RIPLEY. Mr. Bradley, the Under Secretary, is on my right.

Dr. Challinor, the Acting Assistant Secretary for Science, is at the end of the table.

Mr. Warner, Assistant Secretary for Public Service, is next to him.

Mr. Blitzer, Assistant Secretary for History and Art.

Mr. Jameson, Director, Office of Programming and Budget of the Institution.

Mr. Wheeler, our Treasurer.

Behind in the first row of seats, Mr. Chairman, I would like to introduce Dr. Cowan, Director of the National Museum of Natural History.

Dr. Boorstin, Director of the National Museum of History and Technology.

Dr. Whipple, Director, Smithsonian Astrophysical Observatory.

Mr. Lerner, Director of the Hirshhorn Museum and Sculpture Garden.

We have asked to come along as an observer Mr. Michael Collins, astronaut, who is the incoming Director of the National Air and Space Museum.

Senator BIBLE. I remember him very well.

Dr. RIPLEY. He is a St. Albans schoolboy.

Senator BIBLE. As were two of my sons. They brag about him all the time, and deservedly so.

Dr. RIPLEY. The last name on our list is Dr. Reed, who is Director of the National Zoological Park.

JUSTIFICATION

Senator BIBLE. There will be printed in the record the justification material which you supplied in support of your fiscal year 1972 budget estimates for salaries and expenses amounting to \$45,004,000 which is an increase of \$10,302,000 over the appropriations thus far for fiscal year 1971.

(The justification follows:)

"Salaries and Expenses"Summary Statement

Appropriation Act, Fiscal Year 1971	\$34,702,000
Anticipated Supplemental.....	<u>1,630,000</u> 1/
Total Available, Fiscal Year 1971.....	36,332,000
Budget Estimate, Fiscal Year 1972.....	<u>45,004,000</u>
Increase, Fiscal Year 1972.....	\$8,672,000

1/ This supplemental covers the costs of the general schedule raise effective December 27, 1969, the wage board raise effective November 1, 1970, and the guard raise effective November 15, 1970, but does not cover any part of the general schedule pay raise effective January 10, 1971.

Summary of the 1970 Appropriation and 1971 and 1972 Estimates

Unit	1970 Approp.		1971 Approp.		1972 Estimate		Analysis of Increases Necessary Program	
	Pos.	Amount	Pos.	Amount	Pos.	Amount	Pay	Pos. Amount
I Science								
National Museum of Natural History...	258	\$3,912,000	271	\$4,205,000	349	\$5,676,000	\$163,000	78 \$1,308,000
Smithsonian Astrophysical Observatory	57	2,086,000	57	2,076,000	57	2,630,000	21,000	0 533,000
Smithsonian Tropical Research Institute	40	522,000	45	560,000	46	796,000	60,000	12 176,000
Radiation Biology Laboratory.....	36	676,000	40	916,000	57	1,285,000	17,000	6 352,000
Office of Environmental Science.....	23	565,000	34	584,000	42	827,000	18,000	8 225,000
National Air and Space Museum.....	41	486,000	41	626,000	44	731,000	15,000	3 90,000
Center for the Study of Man.....	6	83,000	7	152,000	10	220,000	3,000	3 65,000
Center for Short-Lived Phenomena.....	0	11,000	1	37,000	4	127,000	1,000	3 89,000
National Zoological Park.....	0	0	249	3,150,000	297	3,805,000	70,000	48 585,000
Total, Science	461	\$8,341,000	745	\$12,306,000	906	\$16,097,000	\$368,000	161 \$3,423,000
II History and Art								
Museum of History and Technology....	158	2,149,000	158	2,209,000	157	2,507,000	68,000	-1 230,000
National Collection of Fine Arts	59	1,015,000	70	1,137,000	72	1,245,000	46,000	2 62,000
National Portrait Gallery.....	30	768,000	37	831,000	38	902,000	21,000	1 50,000
Joseph H. Hirshhorn Museum and Sculpture Garden.....	13	308,000	18	416,000	21	1,017,000	14,000	3 587,000
Freer Gallery of Art.....	7	45,000	7	56,000	8	80,000	3,000	1 21,000
Archives of American Art.....	0	0	0	0	11	175,000	0	11 175,000
National Armed Forces Museum Adv. Bd.	8	182,000	8	152,000	6	120,000	5,000	-2 -37,000
Total, History and Art.....	275	\$4,467,000	298	\$4,801,000	313	\$6,046,000	\$157,000	15 \$1,088,000
III United States National Museum								
Office of Museum Programs	7	233,000	9	304,000	9	308,000	4,000	0 0
Exhibits	167	2,354,000	167	2,361,000	164	2,428,000	67,000	-3 0
Conservation Analytical Laboratory....	11	134,000	11	154,000	14	209,000	5,000	3 50,000
Registrar.....	29	327,000	29	301,000	30	358,000	7,000	1 50,000
Total, United States National Museum	214	\$3,048,000	216	\$3,120,000	217	\$3,303,000	\$83,000	1 \$100,000

Unit	1970 Approp.		1971 Approp.		1972 Estimate		Analysis of Increases	
	Pos.	Amount	Pos.	Amount	Pos.	Amount	Pay	Program
IV Public Service								
Anacostia Neighborhood Museum.....	9	124,000	11	125,000	15	177,000	7,000	4 45,000
Office of International Activities.....	8	118,000	8	125,000	9	150,000	9,000	1 16,000
International Exchange Service.....	9	118,000	9	120,000	9	138,000	3,000	0 3,000
Performing Arts.....	7	226,000	7	196,000	7	202,000	6,000	0 6,000
Public Affairs.....	12	277,000	12	241,000	12	258,000	17,000	0 17,000
Total Public Service.....	45	\$863,000	47	\$807,000	52	\$925,000	\$42,000	5 \$76,000
V Special Programs								
American Revolution Bicentennial.....	0	0	2	400,000	2	400,000	0	0 0
Environmental Sciences Program.....	0	0	3	150,000	8	375,000	0	5 225,000
Major Exhibitions.....	0	0	0	0	0	525,000	0	0 525,000
National Museum Act.....	0	0	0	0	3	1,000,000	0	3 1,000,000
Academic & Educational Programs.....	18	572,000	20	599,000	23	725,000	11,000	3 115,000
Research Awards.....	0	400,000	0	400,000	0	450,000	0	0 50,000
Total, Special Programs.....	18	\$972,000	25	\$1,549,000	36	\$3,475,000	\$11,000	11 \$4,915,000
VI Administrative & Central Support								
Secretary.....	38	462,000	38	598,000	40	656,000	12,000	2 46,000
General Counsel.....	8	110,000	8	135,000	9	158,000	5,000	1 18,000
Treasurer.....	31	573,000	31	604,000	33	672,000	13,000	2 55,000
Personnel.....	26	388,000	28	432,000	29	464,000	10,000	1 22,000
Libraries.....	49	659,000	54	739,000	63	950,000	21,000	9 190,000
Press.....	23	700,000	25	707,000	25	758,000	11,000	0 40,000
Information Systems Division.....	13	217,000	14	219,000	16	277,000	8,000	2 50,000
Archives.....	6	33,000	6	61,000	6	69,000	3,000	0 5,000
Photographic Services Division.....	20	265,000	20	252,000	20	280,000	8,000	0 20,000
Supply Division.....	21	318,000	21	327,000	21	355,000	8,000	0 20,000
Administrative Systems Division.....	9	140,000	9	157,000	9	171,000	4,000	0 10,000
Duplicating.....	7	83,000	7	70,000	7	88,000	3,000	0 15,000
Other Central Support.....	13	168,000	13	177,000	13	182,000	5,000	0 5,000
Total, Administrative & Central Support	264	\$4,116,000	274	\$4,478,000	291	\$5,080,000	\$111,000	17 \$491,000
VII Buildings Management Department.....								
	748	\$8,067,000	768	\$9,271,000	793	\$10,078,000	\$382,000	25 \$425,000
VIII Woodrow Wilson International Center for Scholars.....								
	8	91,000	0	0	0	0	0	0 0
Total.....	2,033	\$29,965,000	2,373	\$36,332,000	2,608	\$45,004,000	\$4,154,000	235 \$7,518,000

1/ Presented in a separate appropriation.

NECESSARY PAY INCREASES, FISCAL YEAR 1972

An increase of \$1,154,000 is required for personnel compensation and personnel benefits. The operations of the Smithsonian Institution have been carefully reviewed and the following have been absorbed in our existing base for salaries and benefits. Recent legislation increased the agency's contribution to the employees' health benefits. The agency's share was increased, on the average, from 24 percent to 40 percent of the cost of each employee's health insurance. This Public Law 91-418 became effective January 1, 1971. The Smithsonian is absorbing the cost of this increase which is estimated to cost \$120,000 in fiscal year 1972.

The Smithsonian Institution is also absorbing part of the cost of the Wage Board increase effective November 1, 1970. The amount of the absorption in 1972 is estimated to be \$87,000 and affects the Buildings Management Department and the National Zoological Park. No further absorption is possible without adversely affecting the operations of the Smithsonian.

The above increase will be used to finance the following items:

a.	Periodic step increases in accordance with Government Employees Salary Reform Act of 1964 and with prevailing practices in the wage scales	\$623,000
b.	To finance the cost of promotions	185,000
c.	To finance an extra work day in fiscal year 1972	100,000
d.	Guard raise	163,000
e.	To finance the cost of housing allowance for United States citizen employees of the Smithsonian Tropical Research Institute	21,000
f.	Full-year costs of wage adjustments for wage employees at the Smithsonian Tropical Research Institute	13,000
g.	To finance a new holiday--Columbus Day--as authorized in Public Law 90-363	10,000
h.	Full-year costs of the wage board increase granted on November 1, 1970	39,000
		<u>\$1,154,000¹</u>

In fiscal year 1966, the Smithsonian Institution account obligated 68.9 percent of the total "Salaries and Expenses" budget for personnel compensation and benefits. In fiscal year 1971, we anticipate obligating 74.5 percent of our funds for personnel compensation and benefits. We are striving to achieve a better balance in our funds between those for salaries and benefits and those for other objects of expense. Much of this imbalance has been caused by absorbing portions of legislated salary and wage increases. In order not to have to reduce other objects further, this requested increase is of high priority. People are the Smithsonian Institution's most important asset provided by the budget process, but as modern techniques and equipment are coming into use, we must also be in a position to provide the professional research staff as well as the administrative and technical support staff with such tools as advanced equipment and computer

¹ This amount is distributed in the fiscal year 1972 column of the individual budget requests.

services. This can only be done if we have some flexibility in other objects. Currently this is not the situation. After we have provided for the other essential costs in other objects, i.e., electricity, steam, gas, air conditioning, rent, and communications, there are extremely limited amounts of funds left.

Periodic step increases are made in accordance with the Government Employees Salary Reform Act of 1964 and prevailing practices in the wage system. This amount includes the additional portion of the fiscal year 1971 step increases to be paid in fiscal year 1972 and the new amount to be paid to employees in fiscal year 1972. The apparent cost was determined through a position-by-position study and has been reduced to real cost by offsets resulting from employees being separated or promoted before receiving step increases and from filling some positions at a lower grade step than the former incumbents held. Experience in 1970 showed that we paid \$191,000 in new costs which on an annual basis would have cost \$388,000. We are requesting \$623,000 for these costs in 1972. This is based on our higher employment in 1971 over 1970 and on the fact that 50 percent of 1970's experience was based on lower pay scales, and the wage system's experience was based on pay that will have been increased twice and will probably be increased again in early 1972.

In order to hold its eminent professional research and curatorial staff, the Smithsonian Institution must be in a position to offer promotions as these men gain experience and professional competence. Within the Smithsonian Institution, the historians and scientists are rated by their peers. Certain criteria have been established by these two groups in order to assess rates of professional advancement in order to obtain promotions. There are two groups known as Professional Accomplishments Evaluation Committees. One group is composed of curators and historians in history and the arts. The other group is made up of scientists and curators in the natural sciences. These groups have to recommend a scientist's promotion to the bureau directors before any action can be taken. Even then the bureau directors and the personnel staff have to apply the standard regulations before these promotions are accomplished. In order to keep this program going and to maintain the staff of qualified researchers that have been gathered, the Smithsonian Institution is requesting \$65,000 to pay for the additional part-year cost of fiscal year 1971's promotions in fiscal year 1972 and the additional costs in that year for new promotions. We are also requesting \$120,000 to help finance the upgrading of the rest of our staff.

In fiscal year 1972, there will be an extra workday since February will have 29 days in that year. This will cost \$100,000 in additional salaries and benefits.

The Civil Service Commission was requested and granted authority under 5 U.S.C. 5303 and Executive Order 11073 to establish the special new higher salary rates for all guards GS-085 which is the category of the Smithsonian Institution's special policemen. These guards possess full police power within their jurisdiction including the power of arrest, and are qualified to bear arms under the authorizing statute. The increased salaries were deemed necessary to give them parity with other similar protective forces in the District of Columbia and enhance the ability to recruit suitable personnel and to retain those already on the force who possess the required training and experience. These factors became all the more important in light of the government's security crackdown because of the many recent bomb threats, and the alarming increase in demonstrations, protests, and crimes. The special guard raise gave the guards in GS-3, 4, and 5 an average increase of \$1,500 per year. This increase became effective November 12, 1970. We are seeking \$163,000 to annualize this raise in fiscal year 1972 for our Buildings Management Department.

The Smithsonian Tropical Research Institute is the only U.S. federal activity in the Canal Zone or in Panama whose employees are not offered low-cost Canal Zone housing, Government-leased quarters in Panama, or quarters allowances.

All STRI families must reside in Panama where high costs in comparison with District of Columbia costs provide the basis for State Department surveyed Foreign Quarters Allowances. STRI's U.S. staff members, however, now receive only a 15 percent pay differential as do all other U.S. employees working in the Canal Zone. This differential is approximately three-fifths the value of the Foreign Quarters Allowances received by all U.S. employees working in Panama. The requested funding of \$21,000 would make up the difference by enabling the agency to lease quarters in Panama and sublease these to staff members on a partially subsidized basis. This will rectify a hardship on the STRI's employees. Authorization for a longer-term solution will be sought whereby full Foreign Quarters Allowances may replace the differential.

The Smithsonian Institution's Tropical Research Institute has manual employees who are maintained on a separate pay system from other employees within the Smithsonian. We are requesting \$13,000 to finance the wage adjustments for these employees. This covers \$9,000 for adjustments effective July 12, 1970, and an increase effective October 1, 1970, at \$4,000 to raise the minimum wage paid in the Canal Zone from \$1.45 to \$1.60 per hour.

Public Law 90-363 provided a new holiday--Columbus Day--which will occur for the first time in fiscal year 1972. We are requesting \$10,000 for this holiday since our museums and zoo are open every day of the year except Christmas. This is the holiday pay for the guards, policemen, animal keepers, custodians, and certain mechanics needed to keep the buildings open.

The Smithsonian Institution employs over 700 wage board employees. These employees received a pay increase on November 1, 1970. We are requesting \$39,000 to finance the additional cost of this increase in fiscal year 1972. While most government agencies depend upon the General Services Administration to provide maintenance, operation, and protection services, the Smithsonian Institution because of the uncommon feature of our buildings being not only office space, but museums, galleries, and laboratories, maintains its own Buildings Management Department. At the National Zoological Park, we have the additional feature of having live exhibits. Animal keepers are required to maintain these live exhibits. It is not possible to further absorb pay increases in these two groups of employees by abolishing positions in order to finance wage increases from base resources. Additional building spaces and exhibits are creating needs for more, not fewer, such positions.

Fiscal Year 1972

Organizational Unit	Periodic Step Increases	Promotions	Extra Day	Other*	Total
National Museum of Natural History	\$108,000	\$ 44,000	\$ 11,000		\$ 163,000
Smithsonian Astrophysical Observatory	16,000	3,000	2,000		21,000
Smithsonian Tropical Research Institute	20,000	4,000	2,000	\$ 34,000	60,000
Radiation Biology Laboratory	14,000		2,000	1,000	17,000
Office of Environmental Sciences	14,000	3,000	1,000		18,000
National Air and Space Museum	10,000	3,000	2,000		15,000
Center for the Study of Man	3,000				3,000
Center for Short-Lived Phenomena	1,000				1,000
National Zoological Park	35,000	4,000	11,000	20,000	70,000
National Museum of History and Technology	51,000	11,000	6,000		68,000
National Collection of Fine Arts	29,000	14,000	3,000		46,000
National Portrait Gallery	17,000	2,000	2,000		21,000
Joseph H. Hirshhorn Museum and Sculpture Garden	9,000	4,000	1,000		14,000
Freer Gallery of Art	2,000		1,000		3,000
National Armed Forces Museum Advisory Board	3,000	2,000			5,000
Office of Museum Programs	3,000	1,000			4,000
Office of Exhibits	52,000	8,000	7,000		67,000
Conservation Analytical Laboratory	4,000	1,000			5,000
Office of the Registrar	6,000		1,000		7,000
Anacostia Neighborhood Museum	3,000	3,000	1,000		7,000
Office of International Activities	5,000	4,000			9,000
International Exchange Service	3,000				3,000
Division of Performing Arts	3,000	2,000	1,000		6,000
Office of Public Affairs	15,000	1,000	1,000		17,000
Academic and Educational Programs	7,000	3,000	1,000		11,000
Office of the Secretary	3,000	7,000	2,000		12,000
Office of the General Counsel	2,000	2,000	1,000		5,000
Office of the Treasurer	9,000	3,000	1,000		13,000
Office of Personnel Administration and Health Units	9,000		1,000		10,000

Fiscal Year 1972
(continued)

	Periodic Step	Increases	Promotions	Extra Day	Other*	Total
Organizational Unit						
Smithsonian Institution Libraries	\$ 15,000	\$ 4,000	\$ 2,000			\$ 21,000
Smithsonian Institution Press	9,000	1,000	1,000			11,000
Information Systems Division	6,000	1,000	1,000			8,000
Smithsonian Archives	2,000	1,000	1,000			3,000
Photographic Services Division	6,000	1,000	1,000			8,000
Supply Division	6,000	1,000	1,000			8,000
Administrative Services Division	3,000					3,000
Duplicating Section	2,000	1,000		1,000		4,000
Other Central Support	4,000	1,000				5,000
Buildings Management Department	114,000	45,000	32,000		\$191,000	382,000
Total	\$ 623,000	\$185,000	\$100,000		\$246,000	\$1,154,000

* Other:

Guard Raise--BMD	\$163,000
Housing--STRI	21,000
Wage--STRI	13,000
Wage--NZP	17,000
Wage--BMD	21,000
Columbus Day--BMD	7,000
Columbus Day--NZP	3,000
Wage--RBL	1,000
	<u>\$246,000</u>

SCIENCE

Discovering the history and development of natural phenomena and the characterization of natural events, especially as they relate to the evolution of man in response to his physical and sociological environment, represents the major scientific goal of the Smithsonian. If there is a single scholarly bond of interest among all the activities of the Institution, it is a common concern with history, the history of art, the history of technology, the history of science, and indeed natural history. Our staff of scientists is concerned with elucidating the interrelationships between organisms (including man), communities, and populations with the physical, chemical, and geological factors which play a role in forming the ecology of the earth now and in past ages. More than seventy specialties are represented by the Smithsonian's community of scientists. Activities range from astrophysical investigations that contribute to our understanding of the origin and mechanics of the universe, through investigations on microscopic organisms in the ocean depths, to the development of man as shown by his artifacts and productivity.

There is a major change occurring now in the nation's general scientific effort. This change regards the type of input information more and more investigators view as necessary to further research on problems which are biological or physical in nature. While the change is a contemporary one, it is related in an important way to the basic and long-term activities of the Smithsonian and similar research institutes across the nation, and indeed the world. The change, simply stated, involves the following.

Ecological investigations concerned with identifying long-term factors affecting environmental balance increasingly are becoming dependent on analysis and information constructed around collections of objects. Systematic collections of biological and geological specimens contain standards for describing and measuring ecological changes. Unfortunately, as of now, not enough historical information has been extracted to create "bench-marks" of change which would give scientists accurate indices for speculating about ecological trends, and about man-made solutions to problems which would be in keeping with the natural evolutionary process.

This, however, is the type of work which the various scientific laboratories and museums of the Institution have been involved in for a century and a quarter. In recent times, systematics has not been considered one of the more fashionable of sciences. Even during the hey-day of federal support for scientific research, systematics did not receive the measure of support needed to maintain a level of involvement adequate to the nation's best environmental interests. But now the demands for taxonomic information are increasing rapidly as our national programs of science and technology are redirected to cope with environmental deterioration.

The requests contained in this budget are pointed to rectifying certain support shortages in Smithsonian scientific endeavors in biology and to strengthening certain areas of the physical and anthropological sciences. The increases requested for this Science program amount to \$3,791,000 or 44 percent of the total Institutional requested increase. It will permit improved technical assistance for our scientists to permit them to produce at their optimum level of professional competence.

NATIONAL MUSEUM OF NATURAL HISTORY

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions . .	<u>271</u>	<u>78</u>	<u>349</u>
11 Personnel Compensation.	\$3,806,000	\$ 654,000	\$4,460,000
12 Personnel Benefits.	286,000	51,000	337,000
21 Travel & Transp. of Persons	13,000	86,000	99,000
22 Transportation of Things	0	3,000	3,000
23 Rent, Comm. & Utilities	17,000	4,000	21,000
24 Printing & Reproduction.			
25 Other Services	44,000	150,000	194,000
26 Supplies & Materials	24,000	90,000	114,000
31 Equipment	15,000	433,000	448,000
41 Grants			
TOTAL	<u>\$4,205,000</u>	<u>\$1,471,000</u>	<u>\$5,676,000</u>

Analysis of Total

Pay Increase	\$221,000	\$163,000	\$384,000
Program	\$3,984,000	\$1,308,000	\$5,292,000

Specification of Increase (Program):Correct Museum Support Deficiencies (34 positions, \$576,000)

A serious imbalance exists between the professional research and curatorial efforts and the technical support available for these efforts (museum technicians, assistants, equipment, supplies, etc.). This needs to be corrected over the next few years. The increase requested will more nearly reflect the support ratios as recommended by the President's Science Advisory Committee and the Panel on Systematics and Taxonomy, and allow a shift of professional attention to important contemporary environmental problems.

Environmental Studies (28 positions, \$532,000)

The Museum has a major national role to play in producing baseline information and research related to environmental problems. This increase is directed at strengthening the Museum's ability to fill this role and will involve studies of deteriorating freshwater habitats, sea animal populations, the origin of oceanic ecological systems and terrestrial change.

Collections Information and Electronic Data Processing (16 positions, \$200,000)

If this Museum is to serve as a base for important environmental research, it must make its collections and accompanying data more accessible to researchers and scholars. Data processing provides the only means by which this can be done. This request would expand current efforts to include fishes, marine mammals, and mineral sciences.

NATIONAL MUSEUM OF NATURAL HISTORY

1970 Actual	\$3,912,000
1971 Estimate	\$4,205,000
1972 Estimate	\$5,676,000

This Museum serves as a national and international center for the natural sciences. It maintains the largest reference collections in the Nation and conducts a broad program of basic research on man, plants, animals, fossil organisms, rocks, minerals, and materials from outer space. Its research is concerned with classification, distribution, analysis, and environmental and ecological relationships. Its fundamental studies in systematics and biology are providing new information required for the solution of major national problems of conservation and pollution, food production, improvement of medical knowledge, and for planning national and international programs leading to predictive ecology and environmental management. It engages in joint educational programs with universities by teaching courses, training graduate students, conducting science seminars, and providing leadership in the improvement of museum techniques, collections management, and the training of technical assistants for cooperating institutions.

The NMNH has the legal responsibility (20 U.S.C. 59) to serve as the ultimate Federal repository of all collections and objects of natural history, archeology, and ethnology made by agencies of the Government when no longer needed for investigations in progress. Additionally, the NMNH has become the repository for numerous extremely valuable collections obtained from other sources, such as the scientific community, academic institutions, as well as many private individuals. Because the Museum is the national repository, it has responsibilities far beyond the research of its own staff. It assists both the layman and the scientist with identification, lends specimens for research, and safeguards the tangible results of research. As the National Museum, it has inherent responsibility to provide leadership for other museums and institutions. In this latter role through use of its collections, NMNH is a vigorous scientific organization devoting an increasing share of its resources of professional staff and unrivaled collections to research which is "locked into" understanding, explaining, and coping with the multitude of environmental problems which beset humanity.

For fiscal year 1972, the Museum is requesting an additional \$1,308,000 to help correct imbalances that exist between the levels of professional scientific effort and support effort necessary for proper curation of the collections (\$576,000), and to strengthen the Museum's ability to respond to national problems by expanding and intensifying its research efforts, which are directly associated with its collections interests in ecological and biological areas (\$532,000). An additional \$200,000 is being requested to strengthen the Museum's capability to extract and automate collections information related to the environmental research effort. An increase of \$163,000 is needed to cover necessary pay increases.

Need for Increase1. Museum Support Deficiencies (34 positions, \$576,000)

With the enlarged emphasis on research on the collections, which is basic to explaining the many mysteries of how man must manage his environment, many internal imbalances have resulted. Within the limited resources available to NMNH in the past, it is impossible to perform adequately both the identification and care of the collections and undertake research. In this regard the efforts of the limited subprofessional staff are almost entirely devoted to performing

curation and collection maintenance in the face of ever increasing numbers of specimens which seriously tax the ability of the staff to keep abreast of the workload.

The scientific staff is deeply involved in research, but lacks the necessary support required to provide for daily routine functions. This is clearly most undesirable from both the scientific and the economic standpoints.

Several typical examples will serve to illustrate the nature of this problem:

- a. The lack of sufficient technicians requires that highly skilled and compensated professionals must routinely perform such menial tasks as preparing thin sections for microscopic analysis. This task could be performed competently by subprofessional personnel, freeing the scientist to apply his expertise to meaningful research.
- b. The shortage of technicians precludes the timely and proper provision of routine identification services to numerous requesters. Presently all departments have sizable backlogs of requests which cannot be processed without redirecting personnel efforts from other activities. Frequently, when these services are provided the scientists must do the work so that the curation responsibilities can continue uninterrupted. The professional staff does not do this because of preference, but rather in an attempt to continue the cooperative atmosphere which such consultant work promotes. This routine work can also be effectively performed by technicians.
- c. The shortages of such subprofessionals as illustrators often forces scientists to prepare their own art work in order that research publications can go to press. This is a gross misdirection of scientific expertise. This work could more properly be done by lower-graded employees.
- d. The lending of specimens to other museums and research laboratories is a time-consuming but essential process which requires the selection, withdrawal, packing, and processing of collection material both in the sending and receiving operations. Often this service is provided only by redeploying personnel from other more essential tasks. This is done to discharge the responsibility of the National Museum and to maintain close working relations with the requesters who are engaged in complementary research and who cooperate with SI in the solution of scientific problems. These services could be rendered effectively by technicians if adequate staff were available.
- e. Clerical personnel are also inadequate in numbers to keep pace with the workload. This frequently forces the scientist to type answers to public inquiries, his own reports, memoranda, manuscripts, and do other routine office work.

As far back as 1953 a conference sponsored by the National Research Council called attention to the fact that "the active taxonomists are overwhelmed by the ever-increasing flood of collections crying for attention, to say nothing of the great accumulations of unworked, undetermined materials piled up in years past" and stated that the greatest needs to meet this problem were "increased manpower--more trained and experienced personnel--greater productivity on the part of active systematists and taxonomists."

In May 1969 the President's Science Advisory Committee and the Panel on Systematics and Taxonomy recommended a ratio of three support personnel (technical and clerical) to each professional employee as the optimum level for

research endeavors. As shown in Table 1, the NMNH is able to provide far less than this level of support. Support deficiencies other than those which involve personnel also result in less than truly effective utilization of Museum staff and facilities.

The Smithsonian Council, an Institutional advisory body composed of twenty of the Nation's leaders in art, science, and history, at its spring 1970 meeting adopted the following resolution:

"In view of the present need to protect and appreciate the diversity of the environment, the Council is deeply concerned with the present trend relating to systematic biology as it affects the Museum of Natural History and strongly urges the allocation of additional resources to the Museum to promote this field."

These men, in their present capacities as research scientists, foundation directors, and university scholars, are used as a sounding board by the Institution to help integrate national needs with Institution activities.

Recently many special support services which had been provided by the Institution at no cost to the Museum have been discontinued by the support units because of budgetary constraints. This has required the Museum to redirect funds from other higher priority areas to provide these essential services. Some examples of this follow.

- a. The SI Library now finds it necessary to require NMNH to fund many of its purchases of reference books for the various departments as it is unable to sustain former levels of this support.
- b. The Administrative Systems Division, which formerly provided cataloging forms, labels, and other items essential to systematic and logical curation, is no longer able to furnish this service. The departments must finance their own needs which in some cases represent sizable dollar amounts.
- c. The Supply Division, which in the past stocked most items normally required for departmental operation, has discontinued some 400 items with the result that the various Smithsonian operating units must now purchase these from their own already reduced funds.
- d. The Buildings Management Department now requires the Museum to purchase supplies and materials used in performing many special projects requested. In the past, these materials were routinely supplied.

Other financial problems are present in support areas. For instance, the shortage of specimen storage cases and specimen bottles is acute. In past years it was possible to maintain adequate inventories of bottles for specimens but the financial constraints in the last several years have prevented the replenishment of these stock levels. Specimen storage cases and drawers which in some cases represent the largest single expenditure of a department are no longer purchased on a routine annual basis but rather whenever and to whatever extent funds can be assembled from all available sources. This is neither efficient nor economical since these are not available commercially and must be constructed to exact specifications. Larger volume purchases, such as were possible in the past, would result in lower unit costs. Further, despite selectivity in acquiring specimens, accessions have grown at a rate which outstrips the availability of cases in which to house them. This often means that valuable additions to the

Table 1

NATIONAL MUSEUM OF NATURAL HISTORY

	Ratios of Man-Years of Effort Between Technicians/Scientists						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Sub- Prof. Man-yrs.	Clerical Man-yrs.	Sub- totals Man-yrs.	Prof. Man-yrs.	(3)÷(4) Ratio Man-yrs.	Departmental 2/ Other Supp. (nonpers.) FY 1970 FY 1971	Scientist Share 2/ Other Supp. (nonpers.) FY 1970 FY 1971
Anthropology	14	9	23	17	1.35:1	\$35,800 \$14,800	\$2,100 \$900
Botany	9	6	15	17	0.88:1	36,700 14,400	2,200 800
Entomology	12	5	17	11	1.55:1	24,000 9,600	2,200 900
Invertebrate Zoology	13	6	19	18	1.05:1	32,000 12,100	1,800 700
Mineral Sciences	7	3	10	10	1.00:1	28,300 11,200	2,800 1,100
Paleobiology	18	6	24	18	1.33:1	37,900 15,300	2,100 800
Vertebrate Zoology	15	6	21	13	1.62:1	34,900 13,900	2,700 1,100
TOTAL	88	41	129	104	1.24:1 ^{1/}	\$229,600 \$91,300	\$2,200 \$900

^{1/} Note: The President's Science Advisory Committee and the Panel on Systematics and Taxonomy recommended a ratio of three support personnel to each professional employee.

^{2/} Travel for field work, equipment, laboratory supplies, etc. Excludes \$22,000 for general museum support items in fiscal year 1971.

collections are subjected to improper storage, possible damage, and, most importantly, the inability to locate specimens readily when required for study by Museum and other scientists. Immediate relief is essential to curate incoming specimens in a timely manner, to facilitate proper collection management and provide the research information when needed.

The foregoing are but a very few of the examples of conditions which would be eliminated by additional funding for support shortages. There are many areas in need of increased financial support which individually constitute problems of great magnitude and which when taken collectively represent major deficiencies preventing the Museum from carrying out effectively both its curation and research activities.

In order to correct these support shortage imbalances, an additional \$576,000 is being requested. Shortages of museum technicians and museum aids constitute the greatest need and are largely concentrated in the areas of botany, zoology, and paleobiology (34 museum subprofessionals and \$205,000).

The current Museum ratio of support personnel to scientific professionals is only slightly better than 1:1. The requested increases, while falling short of the standards selected by the President's Science Advisory Committee and the Panel on Systematics and Taxonomy, would serve to improve this ratio to approximately 1.6:1. In addition, \$371,000 are requested to provide needed support for equipment, supplies and materials, and travel. In this latter amount, \$200,000 are in nonrecurring costs involved in major equipment and storage items. The balance of \$171,000 is urgently needed to raise the current annual amount available for expenditures per professional from an average of \$900 to an amount approaching \$2,000, a figure which would permit efficient utilization of the Museum's professional expertise.

2. Environmental Sciences (28 positions, \$532,000)

A total of \$532,000 is requested to initiate or expand present exploratory research projects related to our environment. These projects include studies of the interactions of organisms with each other and with their surroundings--soil structure, temperatures, water supply, day length, available nutrients, and many others. A plant grows where it does, just as an animal feeds on it, because of a complex interrelationship between the non-living and the living parts of the total environment. The development of basic information on these interactions is critically important to establishing environmental standards and to the intelligent management of natural resources in a world increasingly threatened by man's activities. Table 2 presents a program breakdown of the Museum's request.

Concern for environmental matters and the research it engenders currently pervades all of national life, but the National Museum of Natural History has a unique role that has been poorly recognized and supported. The National Collections of natural history objects, now more than 50 million, are the largest data base in the Nation for information on the chemical makeup, structure, geography, and ecology of the world's plants and animals.

Much of this material was collected prior to the first atomic explosion and before pollution from pesticides, heavy metals, and other sources reached anywhere near their present levels. Consequently, it constitutes an irreplaceable base line resource available for analysis which cannot be duplicated. There is no other more reliable, documented source for determining what lived where and when and how. Therefore, the identification and protection of the specimens in the National Collections and the increased availability of information concerning them must be of the highest priority in the development of our Nation's efforts in this vital area. The research based on these collections which is conducted by the Museum's scientific staff is likewise a unique resource available to the entire

Table 2

NATIONAL MUSEUM OF NATURAL HISTORY

Program Category	1970		1971		1972 Shortages ^{1/}		1972 New Prog		1972 Estimate	
	Pos	Amount	Pos	Amount	Pos	Amount	Pos	Amount	Pos	Amount
I. Research and Scholarship	156	\$2,386,000	156	\$2,571,000	21	\$451,000	28	\$532,000	205	\$3,554,000
II. Nat'l Collections Mgmt & Use	83	1,251,000	94	1,349,000	11	236,000	16	200,000	121	1,785,000
III. Education of the Public	19	275,000	21	285,000	2	52,000	0	0	23	337,000
TOTAL	258	\$3,912,000	271	\$4,205,000	34	\$739,000 ^{1/}	44	\$732,000	349	\$5,676,000

^{1/} Includes \$163,000 necessary pay increases; requested program increase to help correct shortages is \$576,000.

scientific community. The Nation's research in the environmental sciences, to be successful, must depend increasingly on the collections, data, and intellectual resources of the Museum.

Two Science Advisors to the President have emphasized the significance of these relationships. Dr. Donald Hornig, testifying before a Congressional committee on environmental quality, pointed out

"the increasing attention being given ecological effects of man's activities calls for additional scientists capable of identifying the multiplicity of biological constituents of an ecosystem as a prerequisite to assessing changes."

More recently, Dr. Lee DuBridge stated in a letter

"Certainly the Smithsonian Institution can play a unique role in meeting our future environmental needs, particularly in the areas of systematics and basic ecology. ... Undoubtedly the taxonomic and systematics capability of the Smithsonian will have to be utilized if we are to know the character of changes occurring in the natural environment."

The new research projects for which increased funds are requested in fiscal year 1972 are designed to permit the Museum to play its "unique role" and provide the services and information needed by all those who are or who will be engaged in these scientific investigations.

The destruction of natural ecological communities all over the world is proceeding at an accelerating rate as technology improves, as population pressure increases needs for space, food, shelter, etc. The effects of clearing large, previously undisturbed areas for housing, industry, and agriculture, and the building of dams and highways, canals and other large public works all pose urgent problems of proportions never before faced by man. It is necessary now to develop a better understanding of what constitutes the "communities" of interdependent plants and animals before disturbances alter them forever. Similarly, such studies permit the protection of organisms against destruction, so that their chemistry, behavior, genetic constitution, and other aspects of their biology, which may be important to man's survival, can be studied. The following projects are those which are most urgently needed.

Study of Deteriorating Freshwater Habitats (3 positions, \$50,000)

Ongoing research on aquatic insects and crayfish will be expanded in order to meet growing needs for basic information by Federal agencies and research organizations investigating environmental quality problems. Both groups of organisms which are abundant naturally in freshwater habitats are quite sensitive to water pollution. Their presence or absence in a particular stream or lake can be an indicator of water quality. In addition, both larvae and adults of aquatic flies, the specific group to be studied in this project, are vital elements in the freshwater food chain.

Animals of the Sea (7 positions, \$121,000)

Information on the identity, distribution, environmental requirements, and behavior of marine animals is fundamental to an understanding of the world-ocean ecological system. A very important international effort was made toward closing this information gap in the International Indian Ocean Expeditions during which large numbers of invertebrate animals were collected. This project includes studies of these materials, the results of which will permit fisheries, biologists, and others to frame rational plans for exploitation of the sea.

The coastal areas and estuaries are particularly critical ecologically because they are the breeding grounds of so many forms of marine life and they are among those most threatened by discharge of industrial/urban wastes. Data which would be developed in this research on bottom-dwelling, microscopic worms and small crustaceans, important food for fishes, will aid scientists in many fields to develop and increase the economic value of foods from the sea.

Marine mammals (seals, dolphins, and whales), in spite of over exploitation, still constitute a valuable natural resource for furs, oil, and food. In addition, the study of their physiological mechanisms (such as their deep-diving adaptations, highly discriminant sonar, and underwater communication) would provide clues to new techniques for ocean exploration and exploitation. The NMNH has the world's largest collection of both fossil and living marine animals and the finest library pertaining to them. The scientist who would be hired on this project would strengthen the Museum's research competence in the field of marine mammals and provide leadership in planning the projected new National Marine Mammal Research Center which will provide facilities to government and university scientists and will be capable of housing the collections, thus permitting adequate study of these outsized specimens.

One has only to have read recent newspaper accounts of pollution of fishes by mercury, pesticides, and petroleum residues to realize that these animals are highly useful indicators of environmental contamination. It is essential that natural populations of fishes be studied now while relatively undisturbed marine habitats are still available. Fishes are an important source of human food, and their number and diversity provide a wide variety of indicators for monitoring local contaminants. The National Museum of Natural History houses one of the world's largest collections of Indo-Pacific reef fishes; however, much of this material remains unsorted and unidentified. As part of this project, these collections will be put into order and provide a starting point for a basic inventory of the species. These specimens will also provide material for chemical analyses to establish the base line information on the amounts of heavy metals and other possible pollutants which they contain. Subsequent analysis of recently caught individuals will permit comparisons with a standard from an environment relatively unaffected by man.

Origins of Oceanic Ecological Systems (9 positions, \$104,200)

Analyses of the rocks and fossils will provide data on the kinds, rates, and causes of natural environmental changes so critical to interpreting the modern situation. With such information, planners will be in a better position to predict the effects of environmental disturbances, whether natural or man-made.

The Atlantic Coastal Shelf is one of the most threatened areas of North America. As a model of the role that geology and paleobiology can play in the interpretation and prediction of environmental changes, the origin and development of the natural environments of the Shelf will be studied in detail. A complete, well-exposed physical record and rich fossil strata are available along the Atlantic Coast. These biological studies will be concentrated on mollusks, one of the most dominant and environmentally sensitive of the marine shelf organisms.

Coral reefs which contain communities of plants and animals which are so easily destroyed by changed environments would also be studied. An evaluation of the origin of the changes which are occurring cannot be made without a thorough understanding of reef ecology. Basic to this knowledge is the origin, structure, and history of the rock framework of the reef. This project is designed to provide these fundamental data.

Studies in Terrestrial Biology (6 positions, \$74,400)

Environmental change affects organisms wherever they occur, from the upper layers of soil to thousands of feet above sea level. Rich soils may contain more than ten million insects and their relatives per acre. These tiny animals are critical links in the total ecological chain of the interrelationships of the soil because many break down plant and animal remains so that the nutrients can be recycled to the living plants. Many insects and plants are sensitive to insecticides and herbicides, and thus can be used as indicators of soil pollution; but in spite of their abundance, little is known of their identity and behavior. This project will develop such information for application to existing problems of land productivity and soil pollution.

The proposed study of birds and mammals would provide clues necessary for solutions to environmental and health problems. Because birds and mammals are closely tied to their habitats, they also are good indicators of environmental change.

Most of what we know about migrations, breeding cycles, population structure, and ecological interrelationships has been derived from investigations on birds and mammals of the Temperate Zone. However, many tropical species, which still live in relatively undisturbed situations and from which the temperate species have evolved, remain poorly known. Many of these species either migrate into the Temperate Zone themselves or come into contact with temperate zone migrants in the tropics and may therefore act as long-distance carriers of disease. Consequently, research in this project will concentrate on the identity, distribution, and ecology of these animals in tropical Asia and Africa.

Changing Climates and Man's Adaptations (3 positions, \$124,400)

By constantly adapting himself, man has survived severe environmental changes throughout his history. Today, and in the foreseeable future, he faces challenges to his survival of a magnitude not dreamed of earlier. But the basic problems are not new, and the more we learn of the adaptations that were successful in earlier periods, the better guidelines we have for current decision-making.

One of the most useful techniques for assessing past conditions in a particular site is the study of the pollens in the various soil layers. Pollen grains of wet-land plants at one soil-horizon followed by grains of desert plants provide important clues to man's life and activities in those periods. Similarly, the origin of cultivated plants in various cultures can be studied by pollen research coupled with archeology. Throughout history, man has had a profound effect on his surroundings, and it is essential that these interdisciplinary studies be initiated now to provide a better understanding of his relationships with the environment and its impact on his cultures, civilization, and ability to survive.

Crystallography Laboratory (\$58,000)

Included in the amount for new program activities is the sum of \$58,000 needed to begin equipping a much-needed crystallography laboratory, through the purchase of a single-crystal diffractometer. The extremely capable crystallographer in the Department of Mineral Sciences could then greatly extend the Smithsonian's research capabilities. The diffractometer is a highly versatile instrument, and yields valuable structural data on virtually any crystalline material. Minerals, meteorites, deep-sea basalts, lunar rocks, and even man-made materials can be studied in minute detail, thus greatly strengthening the analytical power of existing Museum facilities, and adding new dimensions to current and proposed investigations. This sum is a substantial fraction of the total that would be required for a complete laboratory, yet would secure the best instrumentation currently available.

3. Improvement in Collection Management and Availability of Data Through Electronic Data Processing (16 positions, \$200,000)

Improved access for the scientific and museum communities to the data in the National Collections is urgently needed, and is a project of the highest priority of the National Museum of Natural History. Funds appropriated by Congress in fiscal year 1971 for the initial application of electronic data processing to natural history collections are being used in four projects. These projects will make available information on important collections in the Departments of Paleobiology, Botany, Invertebrate Zoology, and Vertebrate Zoology. Each data preparator can prepare for computer entry 8,000 to 12,000 records per year. Computer processing of these records, and the production of listings for internal use and publication, costs approximately fifty cents per record. It is estimated that during fiscal year 1971 a total of approximately 30,000 specimen records will be prepared and computerized for all four projects. The results already achieved in this program include three cross-referenced catalogs, containing information on over 4,000 specimens, which are soon to be published. Two more catalogs covering an additional 10,000 specimens will be completed in the current fiscal year.

The increase of \$200,000 being requested for fiscal year 1972 would be used to expand current efforts to cover new groups of organisms and to initiate new programs in two departments. These projects would make information associated with specimens of animals, plants, and minerals in the National Museum of Natural History collections more readily available to all who need these data. In addition, the volcanic activity file will provide historical perspective and current awareness data on behavior of the world's volcanoes. Users of information produced in these programs include personnel connected with research and academic institutions, industry, and government, as well as other scientists, students, and the staff of the Museum itself. It is estimated that the increase requested would permit the preparation and computer input, manipulation, and output of information on approximately 150,000 specimens per year. Of this number, about 75,000 will be new specimens comprising about one-tenth of the yearly inflow of specimens to the Museum. A major goal for the future is to capture data on the 300,000 to 500,000 most important yearly additions to the collections while continuing work on the major collections already on hand.

Introduction of modern data management methods and computer technology into the control of specimen holdings at the National Museum of Natural History has the immediate benefit of assuring more accurate and permanent capture of information, while at the same time improving the efficiency of highly skilled personnel. However, it is already apparent that a more important benefit is the ability to obtain, through the computer, any of the stored items of data in any desired combination rather than in only the very few categories possible through traditional indexing procedures. Thus, the limiting factor becomes the ingenuity and interest of the researcher rather than the restrictions presently placed on him by conventional paper filing systems. This flexibility is becoming increasingly important for investigation of the complex interrelationships of variables affecting the distribution, genesis, and evolution of minerals, animals, and plants.

Two environmental research proposals, for which funding is also requested, offer examples of the integration of computer data storage and the broader aims of scientific study. Data collected in both the Comparative Faunistic Inventory of Indo-Pacific Coral Reef Fishes and the Development of National Marine Mammal Research Center will be entered into the computer. Study of migration patterns, habitat preferences, population densities, and other important environmental parameters will be made much easier through computerization of the data from these programs.

The tremendous volume of information already in hand in the Museum, but largely in undigested form, and the increasing mass of information currently being collected, poses a staggering challenge. The proposed projects would attack discrete, select segments of this information mass to provide scientific results of the greatest immediate value, and would serve as a base for analyses and future investigations. Over the next several decades this progressive approach would result in the preparation of information about a significant proportion of specimens in the collections, largely as a by-product of other short-term studies which have scientific merit in their own right. The insights which can be gained by the use of the computer for such highly organized data cannot all be predicted, but it is clear from man's growing awareness of environmental interactions that such insights are already very badly needed. Because of the volume of data which must be organized, we must begin now the task of putting into order our knowledge about organisms, environmental phenomena, and the changes which have been and are now taking place.

To summarize, the National Museum of Natural History is requesting \$576,000 (34 positions with \$205,000 for associated personnel costs, plus \$371,000 for equipment, supplies and materials) to correct operating support deficiencies; \$532,000 (28 positions with \$241,000 for associated personnel costs, plus \$291,000 for equipment, supplies and materials, and information processing) for program development in the environmental sciences; \$200,000 (16 positions, with \$96,000 for associated personnel costs) for improving its ability to automatically handle environmental information associated with the collections; and \$163,000 for necessary pay increases in the fiscal year.

SMITHSONIAN ASTROPHYSICAL OBSERVATORY

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>57</u>	<u>0</u>	<u>57</u>
11 Personnel Compensation.	\$1, 157, 000	\$ 19, 000	\$1, 176, 000
12 Personnel Benefits.	92, 000	2, 000	94, 000
21 Travel & Transp. of Persons	50, 000	0	50, 000
22 Transportation of Things	12, 000	0	12, 000
23 Rent, Comm. & Utilities	152, 000	10, 000	162, 000
24 Printing & Reproduction.	30, 000	0	30, 000
25 Other Services.	274, 000	160, 000	434, 000
26 Supplies & Materials.	85, 000	0	85, 000
31 Equipment.	224, 000	363, 000	587, 000
41 Grants.			
TOTAL.	<u>\$2, 076, 000</u>	<u>\$554, 000</u>	<u>\$2, 630, 000</u>

Analysis of Total

Pay Increase.	\$ 68, 000	\$ 21, 000	\$ 89, 000
Program.	\$2, 008, 000	\$533, 000	\$2, 541, 000

Specification of Increase (Program):Phased Development of Large, Low Cost Telescope (\$ 533,000)

Since its establishment, the Observatory has been one of the leading organizations in the field of astrophysics. The Observatory's eminent scientific position is closely associated with its instrumentation capabilities. Recent years' budgeting constraints have jeopardized these capabilities. In conjunction with the University of Arizona and the Department of Defense, the Observatory has a unique opportunity to develop a large astronomical telescope for the nation with new techniques at very low cost. A scientific evaluation of existing national instrumentation capabilities, the requirements of the world astronomical community, and the goals of SAO's own research program, makes it clear that this opportunity should not be neglected. The telescope represents a break-through in instrumentation. A three-year phased plan for development requires \$1,500,000 for engineering design, construction of facilities, and installation. To implement the first year's activity, \$533,000 are requested.

SMITHSONIAN ASTROPHYSICAL OBSERVATORY

1970 Actual.....	\$2,086,000
1971 Estimate.....	\$2,076,000
1972 Estimate.....	\$2,630,000

The Smithsonian Astrophysical Observatory (SAO) pursues a broad program of research in astrophysics and related earth and space sciences. Established in 1890, the SAO was reorganized in 1955 and moved to Cambridge, Massachusetts. In addition to some 50 scientists and supporting staff currently employed in Cambridge, SAO maintains scientific facilities elsewhere in the United States and overseas. Included in these facilities are a multipurpose observatory on Mt. Hopkins, Arizona; a worldwide network of Baker-Nunn camera and laser tracking stations; camera and radar networks in the mid-western United States for meteor studies and meteorite recovery; and joint use with Harvard College Observatory of an 84-foot radio telescope in Massachusetts.

An appropriation increase of \$533,000 is requested to continue the development of a large telescope to provide the kind of instrumentation essential to further scientific achievement and to correct research support shortages. An additional \$21,000 are requested to cover necessary pay increases.

Need for Increase--The professional staff working at SAO has been unable to achieve its full potential because of severe budgetary restrictions. The results of the Observatory's research have established standards for other scientists engaged in similar investigations. Included in these accomplishments are the publication of the 1969 Smithsonian Standard Earth (II), the most accurate representation of the earth's size, shape, and gravitational field ever produced; a determination, through observations, of limits on the frequency and number of micrometeoroids as hazards to space flight; the production of the Smithsonian Astrophysical Observatory Star Catalog and Star Atlas as standard references; and studies of the maser process to help measure the motions of the earth, to test the theory of relativity, and to investigate those areas of the universe where vast natural hydrogen masers operate.

The Observatory has always emphasized pioneering research. For example, SAO recognized even before the first Sputnik was launched that artificial satellites would provide a means for studying the earth and its atmosphere in more detail than ever before possible. The continuing role of SAO as a scientific pioneer depends upon timely, systematic acquisition of new instrumentation. Scientific inquiry is dynamic, and yesterday's tools are seldom sufficient for tomorrow's problems.

From year to year, the Observatory has applied a significant fraction of its funds to acquiring new research capability. The eminent scientific position of the Observatory is closely associated with the capabilities represented by its instrumentation. This necessary policy of instrumentation advancement was unfortunately broken in fiscal year 1971. Inflation and a relatively static budget have made any major equipment purchases impossible. This unhealthy situation must be remedied in 1972 if SAO is to survive as a productive research organization.

In an effort to select the most useful new instrumentation for SAO, the scientific staff evaluated the existing national instrumentation capabilities, the requirements of the world astronomical community, and the goals of SAO's own research program. It was clear that an appropriate step forward would be the construction of a large optical telescope designed for a broad range of applications from infrared astronomy and spectral photometry to observations complementing the capabilities of instruments detecting high-energy radiation.

To overcome the immense difficulties and expense inherent in the manufacture of a single mirror, studies at SAO and elsewhere indicate that design advances lie in the direction of multielement mirror arrays. A telescope of this new design can be relatively lightweight, inexpensive, and extremely accurate--incorporating provisions for small adjustments of the mirrors so that all the images fall upon each other with sufficient precision. Less than a decade ago, such a technique would have been impossible. Changes in temperature and flexure caused by repointing the telescope to observe a different sky section would have caused the delicate alignment of the individual mirrors to go awry. Modern electronics, however, now make it possible to readjust continuously and automatically the alignment of the mirrors to ensure a single image.

SAO has a unique opportunity to undertake a cooperative project with the University of Arizona to build such a large multielement telescope. This pioneering effort will not only produce an instrument with resolving power equal to a 240" conventional telescope but will pave the way for the scientific community to build even larger, more powerful telescopes at remarkably modest costs. A photograph of the planned telescope follows; additional detail related to its development is being separately transmitted in the supplement A Large Astronomical Telescope at Low Cost. The Optical Sciences Center of the University of Arizona has acquired six 72" mirrors. With assistance from the Department of Defense (DOD), they plan to build six systems that will be tied together optically and electronically to function as a single but stationary optical system. The technology developed through this phase of the program will satisfy DOD's requirements. The Smithsonian, a cooperating agency with complementary objectives, plans to work with the University to design and construct a control system, mounting, and shelter so that the instrument can then be used as an astronomical telescope. If this is not done, the nation may lose an opportunity to convert an experiment in technology into a powerful operational scientific instrument at modest cost. An amount of \$1,500,000 spread over three fiscal years will be required for engineering design, construction of facilities, and installation of the telescope. For the first phase of the project, \$533,000 is requested for fiscal year 1972.

SAO RESEARCH PROGRAM

SAO's activities for 1972 will be grouped under three major program headings: 1) THE EARTH AS A PLANET, 2) THE SOLAR SYSTEM, 3) ENERGETIC PHENOMENA in the universe.

The Earth as a Planet

SAO's investigations of THE EARTH AS A PLANET are centered on the dynamics of the earth and its atmosphere. The Observatory applies the most precise laser and electronic techniques now available to monitor geophysical changes by observing the motions of artificial satellites in the earth's gravitational field. This can lead toward better understanding of processes within the earth and may eventually result in practical benefits such as the prediction of earthquakes. Employing techniques developed for measuring satellite orbits, SAO uses its worldwide observing stations to monitor temperature and density variations in the upper atmosphere caused by solar activity.

Man lives in a small and extremely fragile environment close to the surface of the earth; SAO scientists are making major contributions to an understanding of the physical processes that have such a important effect on man's environment.

The Solar System

Studies of THE SOLAR SYSTEM include the near-space neighbors of the earth--the moon, planets, comets, asteroids, and meteoroids--as well as the sun itself and its relationship to other members of this complex system. SAO's research program incorporates theoretical, laboratory, and observational studies of extraterrestrial bodies, their history since the formation of the solar system, and the sea of radiation to which they have been exposed.

Energetic Phenomena

ENERGETIC PHENOMENA studies are concerned with the sources of radiation, including the nature of newly discovered and largely unexplained sources of radiation far outside the solar system. For many scientists, these new astronomical sources present some of the most intellectually challenging problems in science today. More energy is being emitted from the centers of galaxies and from quasars than can be explained by any processes now understood. Most likely, the answers to these newest mysteries will be provided by the newest astronomical tools--radio, infrared, ultraviolet, gamma-ray, and advanced optical instrumentation.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>45</u>	<u>12</u>	<u>57</u>
11 Personnel Compensation.	\$ 409,000	\$ 147,000	\$ 556,000
12 Personnel Benefits.	25,000	9,000	34,000
21 Travel & Transp. of Persons	20,000	9,000	29,000
22 Transportation of Things	4,000	6,000	10,000
23 Rent, Comm. & Utilities	26,000	6,000	32,000
24 Printing & Reproduction.	0	0	0
25 Other Services.	32,000	24,000	56,000
26 Supplies & Materials.	32,000	16,000	48,000
31 Equipment.	12,000	19,000	31,000
41 Grants.			
TOTAL.	<u>\$ 560,000</u>	<u>\$ 236,000</u>	<u>\$ 796,000</u>

Analysis of Total

Pay Increase.	\$16,000	\$60,000	\$76,000
Program.	\$544,000	\$176,000	\$720,000

Specification of Increase (Program):Support to Professional Research Efforts (3 positions, \$34,000)

The environmental research programs have suffered because of a lack of back-up support activity. The greatest shortages are two field aids and a launch operator (\$17,000) and additional direct support for the scientific operations (\$17,000).

Support to Facilities Operations (5 positions, \$64,000)

A large portion of the Institute's annual budget is used to keep the facilities in reasonably good shape; this is a difficult task because of the tropical climate, the growing use of facilities, and condition of some buildings and equipment. A manager and a janitor are needed for the marine station's facilities, a maintenance laborer for Barro Colorado Island, and an electrician and a messenger for all facilities (\$25,000). Additional funding for facilities maintenance and equipment is also requested (\$39,000).

Environment and Behavior Research (2 positions, \$44,000)

A marine ecologist and a forest ecologist are needed to allow a measured step of progress in the research program (\$33,000). Direct support funding is requested for laboratory and office needs, travel and household transportation, and supplies (\$11,000).

Administrative Support and Interagency Research (2 positions, \$34,000)

With the growing utilization of STRI's facilities, administrative support is urgently needed; one office administrator and one technical typist are requested (\$21,000), along with support funding for central administrative functions (\$13,000).

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

1970 Actual	\$522,000
1971 Estimate	\$560,000
1972 Estimate	\$796,000

Established 25 years ago to foster understanding of the tropical environment as preserved on Barro Colorado Island, the Smithsonian Tropical Research Institute has become a center of excellence for advanced studies by staff, advanced students, associates, and visiting scientists on the processes of survival and their relationship to the environment--ever more essential questions for which the tropics are uniquely suited. In the tropics, diversities are greater, competitive processes and interactions more complex, new lines of adaptive radiation more pronounced, and year-round field study and experimental opportunities richer by far than in other climes.

Panama, easily accessible, offers an array of terrestrial and marine study habitats within immediate reach. The Isthmus is a land bridge for the biotic interchange of two continents and, at the same time, a continuing barrier to the biota of two oceans--separated by several millions of years, but only 50 miles apart. This affords an observational and experimental potential which cannot be matched elsewhere. The interdependence of ocean and continent is beginning to be publicly recognized. STRI has one of the few teams of scientists in the world organized jointly to pursue the biology of both realms.

Questions on survival, importance of diversity, the critical role of communications, mapping and influence of environmental change, invasions by new populations, partitioning of environmental resources on land and in the oceans--on these and many other fronts STRI progress is recognized by leaders in biology from around the world. Last year, ten STRI staff biologists gave 25 seminars at leading universities and prepared 53 contributions in research for publication. More than 100 other contributions were made by visiting scientists based on work at STRI.

The great growth in visitor demand from across the United States is testimony to the key value of STRI's role. In the last twelve months alone, 624 men and women from sixty-two universities and 33 agencies and institutions in 28 states and 22 countries spent 8,757 work days mining the combined intellectual and environmental resources at STRI. STRI harbors five laboratories for studying tropical marine and terrestrial ecology from forest and lake to seashore and mountain. Work is underway in forty different habitats on interactions between hundreds of different organisms and their environment. STRI provides a base of operations for pursuing fundamental questions in biology and for understanding the tropics--habitat for one-half of mankind. Concurrently, comparative studies elsewhere in the New and Old World tropics are magnifying the value of efforts at any one locale.

Other recent sources of testimony include the following comments by a prominent scientist and past president of the National Academy of Sciences:

"It is terribly impressive to me and most encouraging that in recent years STRI has expanded into such a first rate and significant institution. Most of the scientists whom I met and talked to at some length are from good to excellent. The program of bringing young people in for substantial working periods is really justifying itself according to my first-hand impressions. The whole organization is gaining immensely from the effect of having a critical mass with genuine group interaction and intellectual intercourse on a high plane.

"In addition to my congratulations on the existence of such a scientifically significant group as that represented by your staff and invited fellows, I must also speak to the value and importance for the total biological community of the excellent facilities you maintain for transient visitors like ourselves."

An increase of \$176,000 is requested to provide a balanced program of research and research support, facilities management, and administration adequate to keep pace with the accelerating demands on the activity. An additional \$60,000 are requested for necessary pay increases, compulsory benefits' cost hikes, and to rectify a housing benefit inequity.

Need for Increase

1. Research Support (3 positions, \$34,000)

During the past year 43 long-term research projects have been conducted by STRI's ten staff biologists, 18 projects ranging between one and two years by visiting postdoctoral and predoctoral fellows, and 40 projects of shorter term by visiting scientists.

Typical staff highlights included:

--the first explorations of Eastern Pacific shores of Western Panama discovering previously unknown large constructional coral reefs, nine species of fishes new to science and eleven new to the region, hydrocorals new to the Eastern Pacific and the first reported stable populations of the coral predator, the Crown of Thorns starfish. The STRI expeditions laid the basis for a new dimension of comparative Atlantic and Pacific analysis, as well as for uncovering natural controls for the predatory starfish that has been highly destructive elsewhere.

--behavior among animals is often critically affected by the success of their communication systems. Major advances were made at STRI in understanding the ways in which "messages," whether simple or highly specialized, mediate among organisms, and with the environment.

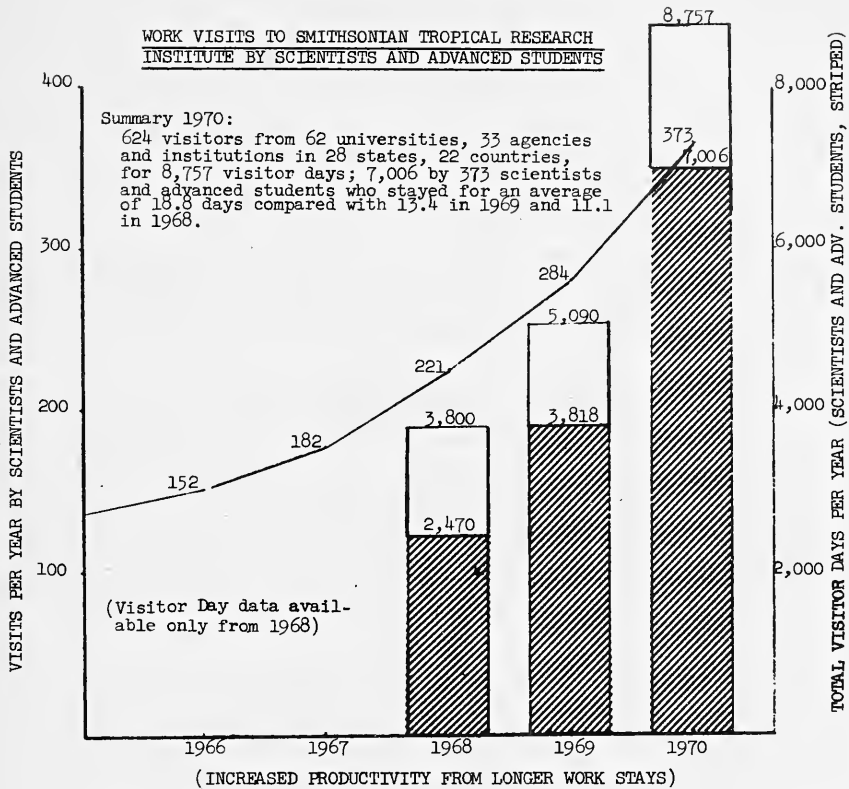
--survival patterns were charted of a highly venomous sea snake widespread in the Pacific but nonexistent in the Western Atlantic in order to predict the colonization and distribution success of the animal should it gain access to the Atlantic through construction of a sea-level canal.

--on Barro Colorado Island, which has housed hundreds of separate studies for four decades, an accelerating recent effort including 16 long-term studies is laying the basis for the development of new methods, with possible broad applicability, for predicting the effects of environmental change on the survival of organisms.

The common denominator on these and nearly all promising efforts is that their productivity has been hampered greatly by the lack of reasonable support. Levels of support are far below national standards. Scientists and staff often work around-the-clock to substitute for support. Immediate needs include two field aides (marine, Barro Colorado) and one marine research launch operator, for \$17,000 in salaries; partial make-up of travel shortages (\$3,000); rectifying a practically zero consulting and computations funding capacity (\$4,000); supply funding deficit of \$400 per scientist (\$4,000); essential equipment needs for balances, drying ovens, freezer, and one four-wheel drive research vehicle (\$6,000); for a total of three positions and \$34,000.

2. Facilities Operation Support (5 positions, \$64,000)

World-wide biology is being enriched importantly by a belated but increasing focus on the tropics. STRI provides a base of operations for tropical research unique in this hemisphere and is acting increasingly as a work-ground and interchange point for collaborators from around the world (e.g., over the last twelve months, 23 leading biologists from the U.S. and Europe conducted advanced seminars at STRI). The following table shows the increased demands on STRI operations.



This demand is greatly welcome and offers promise of concerted advances on urgent biological problems of the Seventies. The effect is that STRI is crammed literally to the rafters with staff, fellows, and visiting scientists. Immediate needs include a marine station chief (the burden for planning and coordinating the greatly increasing number of complex marine laboratory and field visits must fall on the scientists--an inefficient and very costly solution. The marine stations have immediate need for a counterpart to BCI's station manager), one marine station janitor (none now), one general maintenance laborer for BCI, one electrician (none now) for all facilities, one messenger (only one on board now), for \$25,000 in salaries; make-up of shortages in utilities, supplies and fuel (\$7,000); work bench construction, and equipment maintenance contract support (\$3,000); partial replacement (20% of that needed) of ancient furnishings (e.g., main hall chairs on BCI were surplus 15 years ago), messenger vehicle, new and replacement air conditioners, mechanical maintenance tools (\$4,000); for a subtotal of five positions and \$39,000.

In addition, essential building repairs previously shown under the Restoration and Renovation appropriation must now be grouped here. Thirty-six structures with 69,760 square feet of space must be maintained. Repair budgets of \$25,000 over each of the past two years have let STRI narrowly keep pace with some of the most rudimentary of building needs, i.e., replacements of heavily used and rotting floors, completely depreciated air conditioners, etc. Although this level of funding will not permit any substantial projects of renovation, i.e., dock replacement, electrical wiring replacement on BCI, tramway replacement, it is absolutely essential to safeguard present housing space, laboratories, and the people using them. The \$25,000 requested includes \$14,000 in contract services, \$8,000 in supplies and materials, and \$3,000 in equipment. The total increase required for proper facilities operation support is, therefore, five positions and \$64,000.

3. Environment and Behavior (2 positions, \$44,000)

Additions to the STRI staff of a marine ecologist and a forest ecologist will permit progress in comprehending the relationships between ecology and behavior in these two realms. Current studies will incorporate research of wide ecosystem scope including analysis of processes such as energy flow, productivity, nutrient cycling, and food webs. The increase would enable group attacks on key questions and would contribute to the foundation of fundamental research on which to build productive collaboration with others on determining the biological costs of climatic and other physical environmental changes. In addition to fitting precisely within STRI's overall research plan, both scientists would assist in helping STRI to meet the increased calls for advanced training guidance in the subject fields. At the heart of STRI's success has been the slow but steady and deliberate assembly of an outstanding corps of young scientists. The addition of these two positions would allow a measured step of progress in servicing an area of growing need in biology. Salary needs are \$33,000; travel, households transportation, supplies, lab and office needs (\$11,000); for a total of two positions and \$44,000.

4. Administrative Support and Interagency Research (2 positions, \$34,000)

An example of interagency joint research interest is STRI's present contract with the Federal Water Quality Administration. FWOA is concerned over the effects of oil pollution on shoreline habitats. STRI, with its Galeta Point Atlantic field station and professional resources, is interested in analysis of the shoreline ecology and in changes upon it. The concerns merge under the contract to permit a study of the effects of oil pollution on a tropical shore, and natural corrective factors. Many other areas of STRI capability could be brought into mutually beneficial contract relationships with the needs of other agencies (e.g., natural controls of mosquitoes, models for crises resolution, special advanced training programs, etc.).

Proposal drafting, contracts negotiation and administration, however, require capabilities that the small hard-pressed administrative staff at STRI does not possess. The same sized work staff has handled a two-fold increase in workload only because of its devotion, energy, and efficiency. In addition to the several hundreds of research visitors per year, the administrative section now services a total of 72 full-time persons, including, on the permanent staff, ten scientists, three research aides, two librarians, three wildlife aides, and 21 facilities support personnel (game wardens, launch operators, kitchen crew, etc.), in addition to eight contract scientists, eight contract support staff, and eleven full-year fellows. In many cases, clerical employees substitute as well as they are able for the present lack of middle management. Relief is urgently needed. Investment in an office chief and one technical typist (technical typing for the entire staff and fellows is in the hands of one person only) would be repaid many times over, and would permit STRI's small management corps to pursue a greatly increased opening of STRI's resources to cooperating agencies.

The two positions would cost \$21,000 in salaries. Administrative travel increases are necessary to permit continued progress in tying in STRI programs with those centered in Washington (\$3,000); transportation, utility and communications, rental, supply and office equipment shortages must be met (\$7,000); duplicating machinery rental contracts and administrative equipment service contract needs require increased funding (\$3,000); for a total of two positions and \$34,000.

RADIATION BIOLOGY LABORATORY

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>40</u>	<u>6</u>	<u>46</u>
11 Personnel Compensation.....	\$ 443,000	\$ 72,000	\$ 515,000
12 Personnel Benefits.....	34,000	6,000	40,000
21 Travel & Transp. of Persons	8,000	2,000	10,000
22 Transportation of Things			
23 Rent, Comm. & Utilities	306,000	2,000	308,000
24 Printing & Reproduction.....	3,000	1,000	4,000
25 Other Services	25,000	6,000	31,000
26 Supplies & Materials	39,000	4,000	43,000
31 Equipment	58,000	276,000	334,000
41 Grants			
TOTAL.....	<u>\$ 916,000</u>	<u>\$ 369,000</u>	<u>\$ 1,285,000</u>

Analysis of Total

Pay Increase	\$ 20,000	\$ 17,000	\$ 37,000
Program	\$ 896,000	\$ 352,000	\$ 1,248,000

Specification of Increase (Program):Environmental Biology and Solar Radiation Monitoring (6 positions, \$352,000)

The requested increase will permit the reestablishment of Laboratory activity in the highest priority area of its operations-Environmental Biology. Facilities and controlled growing areas at the Mall location are being phased out; \$275,000 are requested for the completion and equipping of five environmentally controlled rooms at the new Rockville location. This amount will cover the shell installation, controls for light quality, intensity, duration, the relative humidity, gas content, and temperature equipment. Six positions are requested (\$61,000 personnel costs) cogent to the Environmental Biology Program, a radiation physicist, environmental physiologist, a laboratory technician, two aides, and a refrigeration mechanic. In addition, direct support funding (\$16,000) is sought to cover related program costs.

RADIATION BIOLOGY LABORATORY

1970 Actual.....\$	676,000
1971 Estimate....\$	916,000
1972 Estimate....\$	1,285,000

From the initial charge that it be concerned with the effects on the sun's energy on earth's life, the program of the Radiation Biology Laboratory has been devoted to the study of the responses of living organisms to various qualities and intensities of radiant energy. The research of the Laboratory consists of three principal areas: 1) Regulatory Biology, 2) Environmental Biology and, 3) Carbon-14 Dating.

Light has been recognized as the key controlling environmental factor for the development and growth of biological systems. The storage of solar radiation as chemical energy in photosynthesis is basic for all life on earth. However, the utilization of radiant energy and stored chemical energy is regulated by subtle changing signals of light quality, duration, and intensity. A primary objective of the Laboratory's efforts has always been to explain the influences of the various factors in the environment--light, temperature, humidity, and atmospheric content--on the growth and development cycles of plants and to characterize the mechanisms through which environmental signals eventually manifest their effects on the developmental processes in living organisms. This is accomplished by studying the problems in the Laboratory under controlled conditions using biochemical, biophysical, and physiological techniques and then verifying the importance of these processes in nature by monitoring the natural, dynamic environment. Such programs of research by their very nature are long-term and require the concerted team efforts of many scientific disciplines. (See the following newspaper extract).

From shortly after its inception in 1928 the Laboratory has occupied a position at or near the forefront of research on the effect of the spectral quality of visible light on plant growth and development. The existing experimental programs encompass a greater number of projects under study than in any other single laboratory in the country and perhaps in the world. The complexity of the problems studied is demonstrated by the number of disciplines encompassed within the program, which has a range through physiology, cytology, biochemistry, biophysics, physics, engineering, electron microscopy, and morphology. The Laboratory has been credited with major contributions in the field of photobiology.

The Laboratory has a phased plan of research development and for fiscal year 1972, an increase of \$352,000 is requested to correct shortages in the current Environmental Biology Research Program. The appended chart shows the past and current distribution of resources and indicates that the research program has remained relatively static in funding except for increases for legislated pay increases. An additional \$17,000 are requested for necessary pay increases.

Need for Increase

Shortages in Research Programs

In the area of Regulatory Biology, the research is primarily concerned with the photoregulatory mechanisms through which small and large changes in radiant energy trigger biochemical, physiological, and morphological changes in living organisms. A major effort has been devoted to the isolation and physiochemical characterization of the photoreceptor "phytochrome", the pigment system responsible for regulating such diverse responses as seed germination, gross morphological development, and flowering.

Also under the program of the Radiation Biology Laboratory is a Carbon-14 Dating Unit that has a research function in addition to its operation as a service facility. The unit plays a significant role in the Institution's program of dating geological and archeological artifacts of cultural and scientific importance. Its research program includes efforts toward refinement of techniques and new instrumentation.

Although there are serious shortages in staffing for carrying on these programs, for maintenance of the building, for acquisition of sufficient laboratory

furniture and adequate equipment to make the new laboratories functional at a reasonable level, and for the refrigeration capacity for providing controlled temperatures in laboratory areas, there is a critical and basic need for Environmental Biology staffing, and for establishment and equipping of environmentally controlled areas for growing plant material.

Environmental Biology and Solar Radiation Monitoring

This area of Radiation Biology Laboratory's activities is concerned with the development of instrumentation and data acquisition systems for continuously monitoring the visible solar spectrum at various stations at different latitudes. At present, two monitoring centers are operating in the Washington area, and one in Israel. Other stations are in the planning stage. Significant data have already been acquired demonstrating the presence and effects of pollutants in the atmosphere.

In conjunction with measuring the spectral quality and duration of sun and sky radiation incident to the earth's surface, studies are being carried on to correlate biological responses (such as flowering, fruiting, and other morphological characteristics) with daily and seasonal fluctuations in the color composition of sunlight. Greenhouse facilities and environmentally controlled growth rooms (until recently, located behind the Smithsonian Building) are used in the studies in determination of correlation between measured solar radiation changes and responses in plant development. A new greenhouse and environment chambers, interference filter monochromators, and other instruments have been designed and developed by the Laboratory.

When the Laboratory was relocated from the basement of the original Smithsonian Building to the facility in Rockville, there were no funds for completing the research facilities. The Environmental Biology program of the Laboratory is dependent upon controlling the major physical factors of the environment, maintaining some at constant levels and varying others to determine the comparative influence of each on plant growth. The influence of atmospheric pollutants can be analyzed under these controlled conditions, as well as influences of varying combinations of temperature, humidity, different wavelengths of light, and nutrition. Installation and equipping of the five environmental control rooms at the new Rockville location could not be undertaken. Facilities now at the Mall location are now being phased out to make room for other Smithsonian purposes. Each of the rooms projected, approximately 100 square feet of floor space, requires precision control of light quality, intensity, duration, relative humidity, gas content, and temperature. Current estimates come to approximately \$35,000 each for the shell of each room, including temperature control, humidity and gas exchange equipment, for a minimum total of \$175,000. The lighting units, capable of simulating subtle changes in spectral quality, as well as the natural photoperiod of daylight, are presently estimated at \$20,000 each, for a total of \$100,000. The requested amount for the five environmental control rooms, with provision for the required lighting equipment, is \$275,000.

In addition, the most critically understaffed area in the Laboratory's research program is Environmental Biology, which consists of about one-third of the total program in work projected and in emphasis. The correlation of solar energy measurement data with biological growth and development is dependent upon the study of plant material grown under controlled conditions that are identical to those produced by the daily and seasonal fluctuations of the sun's light. The six major staff shortages in Environmental Biology research are a radiation physicist, an environmental physiologist, a laboratory technician, two laboratory aides and a refrigeration mechanic. The total sum requested for these positions is \$61,000. At the present time, the Director of the Laboratory is the only PhD-level scientist engaged in research in this program facet, and it can well be realized that administrative and other duties preclude a major part of his time being spent in directing and carrying on a research function. In five object categories (travel, rent and utilities, publication costs, contractual services, and supplies) a total of \$16,000 is requested to offset rising costs.

EXTRACTED FROM WASHINGTON POST, JUNE 5, 1970

AIR POLLUTION DIMS SUNLIGHT HERE BY 16 PERCENT
By Thomas O'Toole

"Air pollution has reduced the amount of sunlight reaching Washington by 16 percent in the past half century."

"This dramatic change probably took place fairly recently. It was discovered when the Smithsonian Institution compared findings from the last two years with two similar studies of sunlight conducted 50 and 60 years ago."

"The decline could have some far-reaching effects, since it is the "quality" of sunlight that regulates the growth of plants and crops, controls the manner in which birds migrate and even dictates such things as the sex lives of some animals, like rodents and fowl."

"The Smithsonian has no direct evidence that air pollution has caused the decline in sunlight, but it has eliminated the weather as a possible cause and by doing so has concluded that it must be air pollution."

"The weather's not a factor since we've carefully compared sunlight readings on clear days," said Dr. William Klein, head of the Smithsonian Radiation Biology Laboratory, which directed the study. "The only thing that can change the amount of sunlight is the air, so it's got to be aerosols, dust particles, water vapor and hydrocarbons in the air that's doing it."

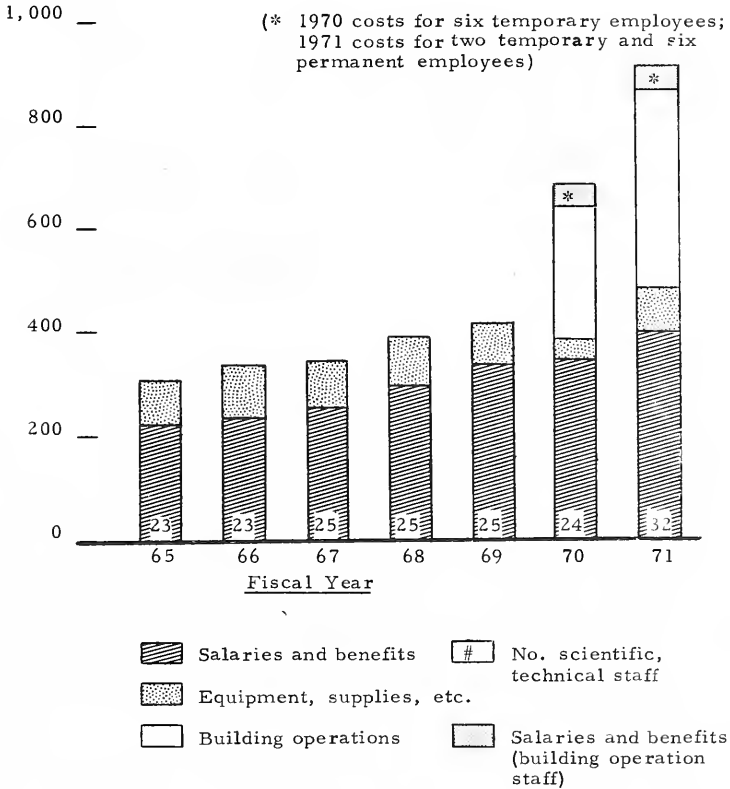
"The Smithsonian has taken readings of the sunlight reaching Washington from sunrise to sunset on almost every day since September, 1968. It missed about 20 days, either because its instruments needed maintenance or because the building where the instruments were housed needed renovating."

"The experiment has been conducted from the tower of the Smithsonian's administration building on the Mall, where instruments recorded the amount of sunlight striking the tower every three minutes. Instruments also measured the amount of light filling the sky from horizon to horizon."

"These readings were compared with readings from similar instruments put in the tower in 1909 by Dr. Charles Abbott, a Smithsonian physicist who later became the institution's fifth secretary."

Radiation Biology Laboratory:
Funding Distribution, Fiscal Years 1965 through 1971

(\$000's)



Using the numbers of scientific and technical staff, and monies available for equipment, supplies and other support, the figure demonstrates that there has been no major increase in operational funds for the research program since 1965. The small annual increases from that date represent primarily salary adjustments and inflation. Although the total appropriation for 1970 and 1971 appears to have doubled over previous years, more than half represents costs associated with the operation of the new building. It should be noted that space, utilities and services were previously supplied from BMD budget. The increase in scientific staff for 1971 is primarily in non-professional technical and non-technical support.

OFFICE OF ENVIRONMENTAL SCIENCES

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions . .	<u>34</u>	<u>8</u>	<u>42</u>
11 Personnel Compensation.	\$ 503,000	\$ 79,000	\$ 582,000
12 Personnel Benefits.	38,000	4,000	42,000
21 Travel & Transp. of Persons	6,000	6,000	12,000
22 Transportation of Things			
23 Rent, Comm. & Utilities	4,000	4,000	8,000
24 Printing & Reproduction			
25 Other Services	22,000	40,000	62,000
26 Supplies & Materials	5,000	60,000	65,000
31 Equipment	6,000	50,000	56,000
41 Grants			
TOTAL	<u>\$ 584,000</u>	<u>\$ 243,000</u>	<u>\$ 827,000</u>

Analysis of Total

Pay Increase	\$ 28,000	\$ 18,000	\$ 46,000
Program	\$556,000	\$225,000	\$781,000

Specification of Increase (Program):Smithsonian Oceanographic Sorting Center (6 positions, \$81,000)

Emphasis in fiscal year 1972 will be on achieving urgently needed capabilities in Smithsonian Sorting Services. Several thousand samples of fresh-water organisms have been sent for sorting in connection with water quality standards. The International Decade of Ocean Exploration, the Cooperative Investigations of the Mediterranean, the International Studies of the Caribbean have regular requirements for marine sorting. The Sorting Center urgently needs four sorters, an assistant supervisor, and a registrar (\$45,000), and funds for operational support (\$36,000).

Chesapeake Bay Center for Environmental Studies (2 positions, \$144,000)

The establishment and utilization of natural areas has become very important to public and private interests in the United States and in the world. The development of principles for the evaluation of alternative land uses lags far behind the requirement for use of such concepts in decision-making. Through the Chesapeake Bay Center for Environmental Studies, the Smithsonian is developing a model watershed study of the Rhode River estuary. Together with the University of Maryland, Johns Hopkins University, Georgetown University, and several Maryland and U.S. agencies, we expect to establish rates and processes of environmental change which will be incorporated in land use management and contribute fundamental data important to the development of urban and suburban areas. To strengthen the services of the Chesapeake Bay Center, a botanist and a security officer are requested (\$20,000), and additional support funds for supplies, materials, and equipment (\$124,000).

OFFICE OF ENVIRONMENTAL SCIENCES

1970 Actual	\$565,000
1971 Estimate	\$584,000
1972 Estimate	\$827,000

The Office of Environmental Sciences was established in order to integrate the Smithsonian programs in ecology and oceanography and limnology, and to strengthen the Chesapeake Bay Center for Environmental Studies. In this establishment, it was recognized that there must be increased concern with the interface between land and water. Knowledge of land use practices as they affect waters, and of the water cycle as a vital contribution to land, becomes of first importance in environmental studies, especially of pollution.

During fiscal year 1971, a study was initiated of the environmental relationships of the Chesapeake Bay Center. Aimed at providing baseline information which could be used in planning, predicting, and evaluating the results of development of the megalopolis, this study will involve many public and private agencies and individuals in sociological, economic, and scientific investigations.

The ecology program has embarked on a series of studies designed to gain insights regarding the management of development projects. Guidelines are being developed to identify the ecological consequences of river basin development, highway construction, growth of cities, and establishment of large biological preserves. The oceanography and limnology program, working especially with offices of the U.S. Antarctic Research Program, the International Cooperative Investigations of the Mediterranean, the International Decade of Ocean Exploration, and other national and international programs, coordinates the participation of scientists of several Smithsonian bureaus and of scientists associated with the Smithsonian in exploration of the oceans. The Office also provides impartial sounding boards for public and agency examination of such issues as pollution in New York Harbor, underwater archeology, Chesapeake Bay research, and marine natural preserves. Through its sorting centers in Washington, D. C. and in Tunisia (the latter principally supported by the foreign currency program), the Office supplies marine biological and geological specimens and related data to scientists around the world.

A program increase of \$225,000 is requested for fiscal year 1972 primarily for the support of the Oceanographic Sorting Center and the Chesapeake Bay Center as national resources. An additional \$18,000 are requested for necessary pay increases.

Need for Increase1. Smithsonian Oceanographic Sorting Center (6 positions, \$81,000)

The Sorting Center processes marine specimens from United States and international expeditions for use by more than 300 scientists from 27 countries in specimen-related research. The Center provides marine biological and geological identification services and operates as a national referral service for all kinds of specimen-based activities, from field collecting to the disposition of identified species in permanent repositories.

The Center has made concerted efforts to improve its productivity. An automatic data processing system for specimen records has been started. Many instruments and scientific devices have been acquired or fabricated to improve efficiency. When possible, items have been procured through government surplus sources to save funds.

Despite improved productivity, the Center is unable to meet the increasing demand from colleges, universities, and federal agencies for specimens. Backlogs of unsorted samples now exist for specimens gathered from the Great Lakes and several important oceanic expeditions. The backlog results primarily from the inability of the present staff to process and sort the more than 10,000 samples being received annually. Unless these samples are sorted soon, many will deteriorate to the point of being useless for research.

In order to alleviate this backlog, \$45,000 are requested for four sorter-technicians, an assistant supervisor, and a registrar. Support funds in the amount of \$36,000 also are requested for contract services, supplies, and equipment needed to sort, package, and distribute specimens, and for travel and rental of equipment.

2. Chesapeake Bay Center for Environmental Studies (2 positions, \$144,000)

The Chesapeake Bay Center is a 2,000 acre natural and semi-natural area located seven miles south of Annapolis, Maryland, about equidistant from Baltimore and Washington. It was established in 1966 and a formal open-ended consortium with Johns Hopkins University and the University of Maryland was created to promote a program of research and education designed to develop ecological knowledge with emphasis on populations, communities, and ecosystems. This program demands the preservation of the land in a natural state, the development of a model watershed research and management program, and the use of the Center as a focal point for educational activities.

A major difficulty that impedes the study of natural systems is the shortage of adequate field stations and research facilities. Ecology is an outdoor science. Although important studies have been done in the laboratory, with few exceptions these have been inspired by observations made in the field. The most effective starting point for the development of ecosystem science is the establishment of natural areas to be used for research and education, with a guarantee of administrative continuity so that long-range research programs can be initiated confidently. The fundamental importance of the Center is the fact that it constitutes the primary mechanism for both teaching and research on complex living systems.

Together with collaborating universities, federal and state agencies, the Center can be used for a model watershed program for the Rhode River. The Center has 12 miles of shoreline and occupies nearly one-half of the shoreline of the Rhode River estuary. Yet the Center has no resident capability for the study of this estuary. It is proposed that such a capability be established. A scientist would be employed and support provided for studies of the estuary. The monitoring of rates and processes of change in this environment is especially vital as the development of suburbs begins to encroach on the Rhode River watershed.

Data on land use history, ecosystem function, and socioeconomic trends and attitudes will be used in a way that will result in optimal wise use of the land and water resources of this small watershed and its adjacent estuary. This model community action program is being developed in conjunction with the Anne Arundel County Office of Planning and Zoning, the Maryland Department of Natural Resources, the Soil Conservation Service, the U.S. Geological Survey, the Department of Housing and Urban Development, and other agencies. A constructive interaction will be established with the people of the area. Such interaction will demonstrate land use planning that offers tangible environmental benefits while avoiding the undesirable elements of a rapidly urbanizing complex. The movement of fertilizers, herbicides, and pesticides, and the effects of soil erosion and estuarine sedimentation, as well as the role of marshes as filter mechanisms, and the influences of these phenomena on the land, living systems, and estuary are studies that may result in suitable control measures applicable to other areas.

The maintenance of the Center as large natural area serves educational purposes and contributes to the esthetic quality of the region. As the area between Washington and Baltimore becomes increasingly populous, the Center increases in importance as a training ground for pre and postdoctoral students, undergraduates, visiting scientists, and others. The use of the Center as a major interpretive facility for young people is rapidly increasing in volume and importance. A museum and nature trail, visual aids, lectures, and "in the field" presentations assist in instilling the individual ecological perspective necessary for our future existence.

For fiscal year 1972, funds are requested for a botanist to survey the vegetation of the watershed, and a security officer to protect the land and water areas (\$20,000). An additional amount of \$124,000 is requested for travel, utilities, services, supplies, and equipment in support of the watershed program and other community-related services of the Center.

NATIONAL AIR AND SPACE MUSEUM

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions . .	<u>41</u>	<u>3</u>	<u>44</u>
11 Personnel Compensation	\$ 462,000	\$ 47,000	\$ 509,000
12 Personnel Benefits	37,000	4,000	41,000
21 Travel & Transp. of Persons	13,000	2,000	15,000
22 Transportation of Things	22,000	5,000	27,000
23 Rent, Comm. & Utilities	3,000	0	3,000
24 Printing & Reproduction	7,000	0	7,000
25 Other Services	43,000	20,000	63,000
26 Supplies & Materials	19,000	12,000	31,000
31 Equipment	20,000	15,000	35,000
41 Grants			
TOTAL	<u>\$ 626,000</u>	<u>\$ 105,000</u>	<u>\$ 731,000</u>

Analysis of Total

Pay Increase	\$22,000	\$15,000	\$37,000
Program	\$604,000	\$90,000	\$694,000

Specification of Increase (Program):Preservation and Restoration of Collections and Exhibits Planning (3 positions
\$90,000)

The target year of 1976 has been selected for the opening of the new National Air and Space Museum building as an important contribution to the national celebration of the American Revolution Bicentennial. A request for planning and redesign funds for this building appears in the construction section of the Smithsonian's budget estimates. This lends impetus to what is already a major institutional need; that is, preserving and restoring our air and space collections. Most of these items are located at the Silver Hill, Maryland, storage facility. About 60 aircraft require conservation and restoration to prevent deterioration. An amount of \$81,000 is requested for three curatorial assistants, contractual restoration services, replacement parts and equipment, and related needs. Also requested are \$9,000 to initiate planning of new exhibits for the building.

NATIONAL AIR AND SPACE MUSEUM

1970 Actual.....	\$486,000
1971 Estimate.....	\$626,000
1972 Estimate.....	\$731,000

By Act of August 12, 1946, the Congress established the National Air Museum as part of the Smithsonian Institution and later by Act of July 19, 1966, added the memorialization of space flight to its responsibility and changed its name to the National Air and Space Museum. The functions of the Museum are to memorialize the national development of aviation and space flight; collect, preserve, and display aeronautical and space flight equipment of historical interest and significance; and serve as a repository for documents pertaining to the development of aviation and space flight. The same Act of July 19, 1966, authorized and directed the Regents of the Smithsonian Institution to prepare plans and to construct a suitable building for the National Air and Space Museum. The target year of 1976 has been selected for the opening of this new building as an important part of the Smithsonian Institution's program for celebration of the American Revolution Bicentennial. A request for planning and redesign funds for this building appears in the construction section of the Smithsonian's budget estimates.

An additional \$90,000 are requested for the preservation and restoration of the Museum's collections and the initiation of exhibits planning. Funding of \$15,000 for necessary pay also is requested.

Need for Increase--The staff of the National Air and Space Museum in carrying out the Museum's functions has selectively acquired the world's most comprehensive collection of historically significant aircraft, spacecraft, engines, instruments, components, and accessories. At the same time there has been assembled a large and valuable collection of documents, photographs, drawings, and publications recording experimentation, research, and development of aircraft and spacecraft together with the history of the aerospace industry.

The museum exhibits a small quantity of historical aircraft, spacecraft, and memorabilia in a 1917 steel shed called the Air and Space Building and in the Arts and Industries Building which was built in 1879-81 for the United States National Museum. These temporary quarters are both inadequate and inappropriate for exhibit of the history and development of this country's aviation and spaceflight. Nevertheless these temporary displays are among the most popular at the Smithsonian museums. In fiscal year 1970 over two and one-half million visitors were counted entering the Arts and Industries Building.

The Museum currently has on loan to other museums some 25 aircraft and 30 engines and propellers. Spacecraft and spacesuits are loaned to the U.S. Information Agency and U.S. Department of Commerce for display in U.S. overseas exhibitions, but the majority of most significant spacecraft are displayed in Washington and many locations throughout the United States.

Most of the aircraft, engines, and spacecraft are located at the Smithsonian storage facility at Silver Hill, Maryland. About 60 of the aircraft are unassembled and inadequately protected from deterioration. A program of conservation and restoration of these historic aircraft is being conducted. The restoration of aircraft is slow and costly, however, and it is necessary to accelerate this program to arrest deterioration and prepare the collections to memorialize the nation's flight accomplishments in an effective and dignified manner. Among the first aircraft scheduled for restoration are the XC-35 (the first pressurized, high altitude airplane), the Douglas World Cruiser, and the Neuport 32. in the case of spacecraft, as received from the National Aeronautics and Space Administration, refurbishment by replacement of missing instruments and sheathing with protective plastic is necessary prior to placing on exhibition.

For the essential program of preservation and restoration of aircraft and spacecraft collections an increase of \$81,000 is required. This will provide for three curatorial assistants for research supporting restoration of collections, the planning and production of new exhibits, and increased requirements for public services. Last year a series of new educational programs were initiated in cooperation with local high schools and limited tours at the Silver Hill facility commenced. It is desired to increase these and other services to the American public. This funding will also provide specialized maintenance and repair, replacement parts and equipment, contractual restoration services, and related travel and transportation.

For the research and planning of details for the new museum building, and development of new exhibit techniques which will be utilized in the new structure, an increase of \$9,000 is required.

CENTER FOR THE STUDY OF MAN

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>7</u>	<u>3</u>	<u>10</u>
11 Personnel Compensation.....	\$ 71,000	\$ 22,000	\$ 93,000
12 Personnel Benefits	5,000	2,000	7,000
21 Travel & Transp. of Persons	10,000	5,000	15,000
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction.....			
25 Other Services	63,000	37,000	100,000
26 Supplies & Materials	1,000	0	1,000
31 Equipment	2,000	2,000	4,000
41 Grants			
TOTAL.....	<u>\$ 152,000</u>	<u>\$ 68,000</u>	<u>\$ 220,000</u>

Analysis of Total

Pay Increase	\$ 4,000	\$ 3,000	\$ 7,000
Program	\$148,000	\$65,000	\$213,000

Specification of Increase (Program):Encyclopaedia of North American Indians (3 positions, \$48,000)

Planning and initial development of the 17 volume Encyclopaedia are proceeding smoothly. A distinguished group of anthropologists and historians have been chosen as volume editors. By May 1971, it is anticipated that writing assignments will be established with about 850 contributors. The first return of manuscripts is expected by August 1971 with all manuscripts received and revised by May 1974. A July 1976 publication date is planned as part of the American Revolution Bicentennial celebration. To meet a firmly identified growing workload, three additional personnel are requested (a copy editor, a research assistant, and a typist) and other funds for the expenses of volume editors and contributors--\$48,000 in total.

Anthropological Communications and Research Programs (\$17,000)

An additional \$17,000 are requested to fund additional small grants for urgent anthropology research in geographical areas that are undergoing rapid environmental change as a result of urbanization, improved communication, better transportation, or other factors. These funds would also be used to support a task force study of world population growth.

CENTER FOR THE STUDY OF MAN

1970 Actual	\$ 83,000
1971 Estimate	\$152,000
1972 Estimate	\$220,000

The Center for the Study of Man is presently concentrating its efforts in three general areas of program development: American Indian Program; International Anthropological Communications Program; and the Coordination of Research on Major World Problems. Under the American Indian Program, three interrelated activities can be identified:

- Development of the 17 volume Encyclopaedia of North American Indians (successor to the original Handbook) including appropriate American Indian scholarly input and involvement.
- Development of a system for providing scholarly educational materials concerning Indians to individuals, schools, and Indian communities; and helping to coordinate educational intercommunication among Indians themselves, and with scholars and appropriate governmental and private agencies.
- Development of a legal-historical research program on the North American Indian land base.

For fiscal year 1972, an increase of \$65,000 is requested for continued development of the Encyclopaedia of North American Indians and for the anthropological communications and research programs. An additional \$3,000 are requested for necessary pay for current staff.

Need for Increase1. Encyclopaedia of North American Indians (3 positions, \$48,000)

The purpose of the Encyclopaedia, consisting of 17 volumes, is to summarize all that is known of the prehistory, history, and traditional and modern cultures of all the Indian groups north of Mexico, to bring up to date and replace the previous standard encyclopaedic work on this topic which was issued by the Smithsonian in 1907-1910. This will become the standard reference work on all aspects of North American Indian history and anthropology for students, teachers, authors, researchers, and administrators, both non-Indian and Indian, both U.S. and foreign. A list of the volume titles is shown on a following page.

Ever since its founding, the Smithsonian has conducted important research on American Indian history and cultures, and has been looked to as an important (often the most important) source of information on these topics. As a result, the resources of the Institution--scientific staff, manuscript and picture archives, library, and museum collections--are unexcelled anywhere as a basis for this project.

Planning for the Encyclopaedia of North American Indians has now been completed. A series of meetings have been held, first by an Advisory Committee to choose volume editors, and then by each volume editor to select authors for his particular volume. A distinguished group of anthropologists and historians, including two American Indians, have been chosen as volume editors. These volume editors come from a number of distinguished institutions including the University of Nevada (Dr. Warren D'Azevedo), University of Iowa (Dr. June Helm), Portland State University (Dr. Wayne Suttles), University of Oklahoma (Dr. William Bittle), University of Arizona (Dr. Frederick Hulse), Harvard University (Dr. Ives Goddard), University of Chicago (Dr. Raymond Fogelson).

University of California (Dr. Mary Haas and Dr. Robert Heizer), McMaster University (Dr. David Damas), Princeton University (Dr. Alfonso Ortiz), McGill University (Dr. Bruce Trigger), and the University of Saskatchewan (Professor D'Arcy McNickle). The Encyclopaedia office is functioning smoothly and everyone connected with the project has been cooperative and enthusiastic.

The timetable for this project is as follows:

May 1971--writing assignments given to approximately 850 contributors;
 May 1972--completed manuscripts received;
 May 1973--revised and reassigned manuscripts completed;
 May 1974--submission of manuscripts for the 17 volumes to the printer;
 July 1976--issuance of the Encyclopaedia as part of the American Revolution Bicentennial celebration.

The requested additional funds will be used to hire three new personnel (a copy editor, a research assistant, and a secretary-typist) and to pay for the expenses of volume editors and contributors. It is anticipated that the first manuscripts will be arriving by August 1971 and that they will increase in number as the year progresses.

2. Anthropological Communications and Research Programs (\$17,000)

The remainder of the requested increase would go to support the International Anthropological Communications Program and the research program on topics relevant to the understanding of major world problems. For the former, \$5,000 are requested to be used mainly in support of the Urgent Anthropology Small Grants Program. The remaining funds (\$12,000) would be used to assemble a task force of human science specialists to begin a five-year research program on how different cultures manage their environment.

The Urgent Anthropology Small Grants Program has been meeting the needs of the scientific community by identifying, publicizing, and financing small grants for research in geographical areas that are undergoing rapid environmental change as a result of urbanization, improved communications, better transportation, and other factors. During fiscal year 1970, in collaboration with 40 scholars and nine institutions, nine grants with a value of \$7,600 were made. As an example of this program, during the past summer, a small grant of \$1,000 resulted in a study of the Ahashamen Indians of San Juan Capistrano. Twenty-five reels of taped materials were collected on the language and oral history of these people. In addition, a number of pictures were taken and a large number of field notes were recorded. Another small grant of \$1,000 has resulted in an unusual study of a Tibetan monastery which was recently built in Switzerland. For the first time, we have been able to record the actual construction of a Tibetan monastery, together with the accompanying ritual. It may never be possible to do this again.

The research program on management of the environment is a continuation of efforts to assemble "task forces" of human scientists from appropriate institutions throughout the world to work together on major world problems. This year the Center is studying and inventorying present knowledge about problems of world population growth with emphasis on discovering what an anthropological approach to this problem will reveal. Included in this effort are scientists, scholars, and persons involved in administration of programs (governmental and otherwise) concerned with this problem. Educational means (including museum exhibits, mass media communication, etc.) to provide information to the public, including governments and other appropriate organizations, are being established. It is anticipated that members of the "task force" will work together for a five-year period before publishing their final results.

Volumes of the Encyclopaedia of North American Indians

- I. Introduction
- II. Contemporary Affairs
- III. Environment, Origins, and Population
- IV. History of Indian-White Relations

Area Volumes:

- V. Arctic
- VI. Subarctic
- VII. Northwest Coast
- VIII. California
- IX. Southwest
- X. Basin-Plateau
- XI. Plains
- XII. Northeast
- XIII. Southeast
- XIV. Comparative Culture
- XV. Languages
- XVI. Biographical Dictionary
- XVII. General Index

CENTER FOR SHORT-LIVED PHENOMENA

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions . .	<u>1</u>	<u>3</u>	<u>4</u>
11 Personnel Compensation	\$ 14,000	\$ 26,000	\$ 40,000
12 Personnel Benefits	1,000	2,000	3,000
21 Travel & Transp. of Persons . .	1,000	2,000	3,000
22 Transportation of Things	0	1,000	1,000
23 Rent, Comm. & Utilities	9,000	26,000	35,000
24 Printing & Reproduction	5,000	14,000	19,000
25 Other Services	4,000	15,000	19,000
26 Supplies & Materials	3,000	3,000	6,000
31 Equipment		1,000	1,000
41 Grants			
TOTAL	<u>\$ 37,000</u>	<u>\$ 90,000</u>	<u>\$127,000</u>

Analysis of Total

Pay Increase	\$ 2,000	\$ 1,000	\$ 3,000
Program	\$35,000	\$89,000	\$124,000

Specification of Increase (Program):World-Wide Natural Event Monitoring and Reporting (3 positions, \$89,000)

Over the past three years, the Center has reported over 320 ecological, geophysical, and astrophysical events occurring in 78 countries and all the world's oceans. Its reporting network has grown to 2,600 scientists and scientific field stations in 148 countries and territories. Despite an enthusiastic response from federal agencies and the international scientific community, outside financial support for regular, on-going operations is difficult to obtain. Special reporting projects are so funded and the Center has a subscription program which produces about \$25,000 a year. A program increase of \$89,000 is requested to find three additional positions (event research specialist in biology; an event information specialist, and an operations specialist for \$27,000) and to provide for communications, printing, computer services, and other operational costs (\$62,000).

CENTER FOR SHORT-LIVED PHENOMENA

1970 Actual.....	\$11,000
1971 Estimate.....	\$37,000
1972 Estimate.....	\$127,000

The Center for Short-Lived Phenomena is an early alert system and clearinghouse for the reception and dissemination of information on short-lived natural events. The Center alerts scientists, agencies, and research institutions to major short-lived ecological, geophysical, and astrophysical events occurring anywhere in the world. It quickly communicates data and descriptive information on events such as large oil spills, major atmospheric and water pollution events, high biocide residue discoveries, massive fauna and flora mortalities, volcanic eruptions and major earthquakes, the birth of new islands, the fall of large fireballs and meteorites, sudden changes in biological and ecological systems such as animal migrations and colonizations, and any other natural or man-made phenomena that require rapid response from scientists in order that they may take advantage of research opportunities while environmental changes are occurring.

During the past three years the Center has reported over 320 short-lived events that occurred in 78 countries and all the world's oceans, including 143 earth science events, 102 biological and ecological events, 49 astrophysical events, and 8 urgent anthropological and archaeological events that led to 237 scientific field expeditions. The Center has issued over 1,000 event notification and information reports to thousands of research scientists and institutions, published 52 event reports, handled a communications volume of over half a million cable words and mail volume of 690,000 event notification and information cards. Charts on a following page show growth of the Center's activities.

An increase of \$90,000 is requested for the Center's basic operations.

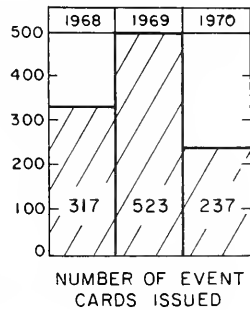
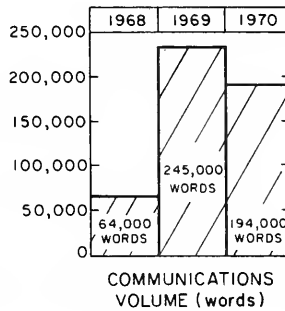
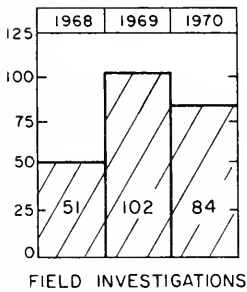
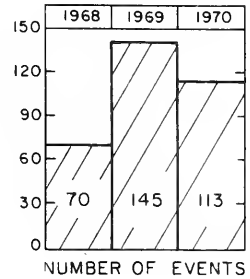
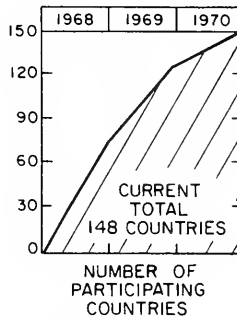
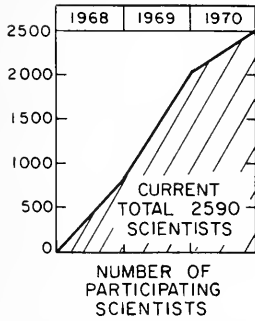
Need for Increase--The Center has had an overwhelming response from federal agencies and the international scientific community. At the urging of a number of agencies and international organizations, it has become involved increasingly in reporting significant environmental pollution events. Because of its comprehensive global communications system and its reporting network that has now grown to 2,600 scientists and scientific field stations in 148 countries and territories, the Center was able to report every major environmental pollution event, volcanic eruption, earthquake, oil spill, and meteorite fall that occurred on earth in 1970, usually within hours after the events occurred.

The Center has instituted many labor and cost-saving measures such as the development of automatic computer printouts of event notifications, but current staff and resources are severely limited. Its ability to cope with the demand for its services, particularly requests from federal agencies and international organizations for fast, qualitative information on environmental pollution events, is very inadequate. The Center has been successful in obtaining outside financial support from the Ford Foundation, from UNESCO, from NASA, and from the AEC for special projects dealing with global environmental monitoring and the transient lunar phenomena program. It has also instituted an event notification subscription program that now has over 600 subscribers and produces income of over \$25,000 per year, but the success of the Center's regular operations will depend heavily on the level of core federal funding that will be received.

The Center will begin no new activities in fiscal year 1971 and plans none for fiscal year 1972 that will use federal funds but requests that fiscal year 1972 federal support be provided for two types of current shortages: those resulting from the Center's increased commitments in environmental pollution event information communication, and those resulting from the loss of grant and contract support from NASA and NSF due to agency budget cuts.

An increase of three federal positions is requested: an event research specialist (biology) to handle a burgeoning volume of event research on ecological and environmental pollution events; an event information specialist to assist in the collection and dissemination of event information to 160 federal agencies and scientific research centers throughout the world; and an operations specialist to handle a continuously increasing communications and computations workload (\$28,000). In order to continue to operate the Center at its current level, the following increases in basic federal support for the Center also are requested: travel (\$2,000); transportation of things (\$1,000); rent, communications, and utilities (\$26,000); printing and reproduction (\$14,000); other services (computations and information systems support) (\$15,000); supplies and materials (\$3,000); and equipment (\$1,000). The total increase requested, \$90,000, will permit the Center to continue to operate at its current level of activity in fiscal year 1972.

GROWTH OF ACTIVITIES OF THE SMITHSONIAN CENTER FOR SHORT-LIVED PHENOMENA



NATIONAL ZOOLOGICAL PARK

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>249</u>	<u>48</u>	<u>297</u>
11 Personnel Compensation.	\$ 2,384,000	\$ 357,000	\$ 2,741,000
12 Personnel Benefits.....	208,000	43,000	251,000
21 Travel & Transp. of Persons	8,000	10,000	18,000
22 Transportation of Things	3,000	0	3,000
23 Rent, Comm. & Utilities	114,000	30,000	144,000
24 Printing & Reproduction.....	1,000	0	1,000
25 Other Services	42,000	23,000	65,000
26 Supplies & Materials	319,000	97,000	416,000
31 Equipment	71,000	95,000	166,000
41 Grants			
TOTAL.....	<u>\$ 3,150,000</u>	<u>\$ 655,000</u>	<u>\$ 3,805,000</u>

Analysis of Total

Pay Increase	\$ 155,000	\$ 70,000	\$ 225,000
Program	\$2,995,000	\$585,000	\$3,580,000

Specification of Increase (Program):Office of Director (8 positions, \$135,000)

Improve public services; staffing the Hospital-Research Building; increased costs of operating items.

Operations and Maintenance Department (30 positions, \$293,000)

Accomplish maintenance workload; increased costs of operating items; equipment replacement.

Department of Living Vertebrates (5 positions, \$72,000)

Accomplish research workload; acquisition of animals; animal food; increased costs of operating items.

Department of Scientific Research (1 position, \$31,000)

Accomplish research workload; temporary employees.

Animal Health Department (4 positions, \$54,000)

Improve medical treatment.

NATIONAL ZOOLOGICAL PARK

1970 Actual.....\$2,847,000 1/
 1971 Estimate.....\$3,150,000
 1972 Estimate.....\$3,805,000

The National Zoological Park was founded by Congress in 1889 for the "advancement of science and the instruction and recreation of the people." To accomplish this mission, the Zoo exhibits a broad zoological collection of animals from all parts of the world in natural surroundings; maintains an information and education program for the benefit of the visiting public from all over the United States; and promotes scientific research, including biomedical programs, for increased scientific knowledge and for the benefit of the animals so that visitors can enjoy them in prime health. To accomplish this mission, the Zoo is organized in five departments: Office of the Director; Operations and Maintenance; Living Vertebrates; Scientific Research; and Animal Health.

For fiscal year 1972, a program increase of \$585,000 is requested to staff and operate the new Hospital-Research Building and other facilities; to operate the new heating plant; to replace ground equipment items; to augment the travel, animal acquisition, and food funds; and to install a new communication system. An additional \$70,000 are required for necessary pay increases.

These increases are distributed in the following table. Specific details of organization, functions, and budget requirements are presented on the following pages.

(In thousands of dollars)	<u>1970</u>		<u>1971</u>		<u>1972</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Office of Director.....	60	\$814	61	\$909	69	\$1,088
Operation and Maintenance.....	99	975	100	1,114	130	1,420
Living Vertebrates.....	77	874	77	962	82	1,043
Scientific Research.....	5	72	6	84	7	118
Animal Health	5	67	5	81	9	136
Total.....	246	\$2,802	249	\$3,150	297	\$3,805

The number of zoo visitors increases annually. In calendar year 1970, approximately 5,200,000 visited the Zoo. A significant number of these visitors are in organized school groups from the metropolitan area and more distant points. The Zoo is increasingly used as a teaching site by teachers of biology and other natural sciences. The increased visitor load increases requirements for patrols, trash clean-up, washroom sanitation, first aid, and other services.

Continued improvements have been made in the collection of animals, which is one of the world's largest. As the collection evolves, the zoo will present exhibits of greater visitor interest and, at the same time, give greater emphasis to species and groups which effectively demonstrate significant points of animals' adaptations and behavior. Greater emphasis will be given also to increasing zoo births by pairing unmated animals and maintaining breeding groups. Not only is this good conservation practice; it is essential in view of the increasing scarcity of many species and the high prices that must be paid to acquire them.

Construction and improvement programs have progressed with the following results. The east-west perimeter road, eliminating through traffic in the main section of the Park, was completed in June 1964. The incinerator for the

1/ Included in the District of Columbia budget.

sanitary disposal of trash and waste materials was completed in June 1964. In February 1965, the remodeling and renovation of the Bird House was accomplished. In June 1965, the new Great Flight Cage and two parking lots for 245 visitor cars were completed. A parking lot which accommodates 260 visitor cars and 24 buses was completed in October 1965. Construction of a trunk sewer to eliminate most of the pollution discharged into Rock Creek was completed in June 1967. The remaining discharge, chiefly from waterfowl ponds, was eliminated by construction funds appropriated in fiscal year 1968. The Deer Area was completed in November 1965. The Hardy Hoofed-Stock Area was completed in August 1966, and Delicate Hoofed-Stock buildings No. 1 and 2 were completed in January 1967. The construction of the new Hospital-Research Building, started in June 1968, was completed in January 1970. The old coal fired boilers were replaced with new gas fired units during the summer of 1970.

NATIONAL ZOOLOGICAL PARK
Office of the Director

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>61</u>	<u>8</u>	<u>69</u>
11 Personnel Compensation....	\$ 657,000	\$ 72,000	\$ 729,000
12 Personnel Benefits.....	56,000	21,000	77,000
21 Travel & Transp. of Persons	8,000	4,000	12,000
22 Transportation of Things	1,000	0	1,000
23 Rent, Comm. & Utilities	114,000	30,000	144,000
24 Printing & Reproduction.....	1,000	0	1,000
25 Other Services	28,000	18,000	46,000
26 Supplies & Materials	33,000	18,000	51,000
31 Equipment	11,000	16,000	27,000
41 Grants			
TOTAL	\$ <u>909,000</u>	\$ <u>179,000</u>	\$ <u>1,088,000</u>

Analysis of Total

Pay Increase	\$ 45,000	\$ 44,000	\$ 89,000
Program	\$864,000	\$135,000	\$ 999,000

Specification of Increase (Program):

Improve the Services of the Director's Office (2 positions, \$38,000)

As the Zoo increases in popularity as a source of scientific information, the volume of correspondence has increased. Two secretarial positions and supplies and equipment are requested (\$16,000). Additional travel funds (\$4,000) are needed largely in connection with the animal acquisition program. Funds are also required to meet the rising costs of routine services, supplies, and equipment associated with Director's Office operations (\$18,000).

Staffing the Hospital-Research Building (3 positions, \$34,000)

The Hospital-Research Building was completed and occupied in January 1970; the Pathology Office was transferred to this building in September 1970. A histopathology technician and a secretary are needed for specific research projects (\$16,000). One police position is requested to enlarge the night shift for the protection of drugs and expensive medical equipment (\$9,000). Supplies and equipment, including books, are required for hospital operations (\$9,000).

Administrative Services (3 positions, \$63,000)

As Zoo programs develop, the Supply Section workload has expanded. Request is for two positions, supplies, and equipment to augment the staff of this section (\$14,000). One clerk-typist position and supplies and equipment are required for the protective service program to perform administrative tasks now done by officers who should be on patrol duties (\$8,000). An increase in utilities funding (\$30,000) is requested to operate the new heating plant and to meet the increased cost of operating the Hospital-Research Building. Funds (\$11,000) are requested to replace and expand the communications system on a rental basis.

Office of Director

The Office of the Director plans and directs all Zoo programs. It also coordinates the activities and functions of the Pathology Office and the Planning and Design Office; directs the protective service program; develops and maintains the Zoo's educational program; and furnishes general administrative services. The animal acquisition program is under the direction of this office. The Office of Pathology performs histopathologic and gross pathologic diagnosis of disease in the animal collection and education of biomedically aligned students and trainees. The Planning and Design Office coordinates all construction projects and prepare criteria and architectural design of major structures. The protective services program enforces laws and regulations for the protection and safety of visitors, animals, and Government property. The educational program is being implemented through informative labels, exhibits, lectures, guided tours, and cooperative programs with local school systems. Administrative services include personnel, budget, fiscal, supply, and procurement functions.

An increase of \$135,000 is requested to provide eight positions to meet the increases in workload in the Director's Office, Pathology Office, protective services program, and administrative services; to cover increased costs of travel, utilities, supplies, and equipment; and to install a new communication system. An additional funding of \$44,000 is sought for necessary pay purposes.

Need for Increase1. Directors Office (2 positions \$38,000)

As the Zoo increases in popularity as a source of scientific information, the volume of correspondence (local, national, and international) has increased, causing a backlog of administrative requirements. To meet the increased volume of work in the Director's Office and the Assistant Director's Office, two secretarial positions are requested (\$16,000).

Additional funds are sought for travel, largely in connection with the animal acquisition program, and for services, supplies, and equipment associated with Director's Office operations. For the most part, these funds are required to meet rising costs (\$22,000).

2. Staffing the Hospital-Research Building (3 positions \$34,000)

The Hospital-Research Building was completed and occupied in January 1970. The Pathology Office was transferred to this building in September 1970. The plans for the coming year are to continue to improve the service to the Zoo and to undertake specific research projects by means of conventional pathologic techniques. The Zoo has the opportunity to offer outstanding research and training services. Space will be available for visiting scientists, undergraduate fellows, and trainees interested in the research potentialities of the pathology laboratory. The degree to which specific research can be accomplished will depend largely upon the availability of technical and clerical help. To expand this service, two positions, a secretary and a histopathology technician, are requested (\$16,000).

One police position is requested to enlarge the night shift for the protection of drugs and expensive medical equipment and for park security around the Hospital-Research complex, located in the wooded area of the Park (\$9,000).

Travel, supplies, and equipment, including books, are required to provide program support to the operations of the Hospital-Research Center (\$9,000).

3. Administrative Services (3 positions \$63,000)

As the number of personnel in the Zoo increases and programs expand, the workload in the supply section of the Administrative Service Division increases. For instance, the availability of funds for capital renovation and repairs to existing surroundings and buildings has increased the workload. An additional purchasing agent and a clerk typist are required (\$14,000).

One clerk typist position is needed for the protective service program to perform the administrative duties now accomplished by officers who should be on patrol duties. Forms that are required to be typed cover police activities, personnel manning, park safety, and requisitions for supplies and equipment (\$8,000).

During the summer of 1969, the first phase of conversion of the heating plant from coal to gas was accomplished. The complete conversion was accomplished in the summer of 1970. The cost for operating the Hospital-Research Building has exceeded estimates. Additional funds are required for utilities (\$30,000).

There are remote areas of the Park in which tradesmen, police, and professional staff must work. It is frequently important to communicate quickly with these people and telephones are not readily available. Funds are requested to replace and expand the Zoo's radio communication system on a rental basis (\$11,000).

NATIONAL ZOOLOGICAL PARK
Operations and Maintenance

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions . .	100	30	130
11 Personnel Compensation	\$ 870,000	\$ 185,000	\$ 1,055,000
12 Personnel Benefits	84,000	15,000	99,000
21 Travel & Transp. of Persons	0	1,000	1,000
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction			
25 Other Services	14,000	5,000	19,000
26 Supplies & Materials	122,000	49,000	171,000
31 Equipment	24,000	51,000	75,000
41 Grants			
TOTAL	\$ 1,114,000	\$ 306,000	\$ 1,420,000

Analysis of Total

Pay Increase	\$ 52,000	\$ 13,000	\$ 65,000
Program	\$1,062,000	\$293,000	\$1,355,000

Specification of Increase (Program):

Maintenance and Operations of the Physical Plant (30 positions, \$293,000)

General workload demands for maintenance and operations require staff and funding increases in several areas. For supervision and general operations of this department, an assistant buildings manager and a production control clerk and funds for work uniforms and safety supplies are needed (\$33,000). Delay in zoo reconstruction makes it necessary to prolong the life of existing facilities. Five crafts workers and maintenance supplies and equipment are needed (\$65,000). Tree and grounds maintenance over 156 acres, including newly developed areas, requires six additional grounds workers and replacement supplies (\$63,000). The installation of new technical control boilers and other heating and air-conditioning machinery requires six additional boiler plant operators for adequate maintenance of this expensive equipment (\$45,000). The requirement for personnel to operate auto equipment has increased beyond a workable schedule for pick-up and delivery services. Two additional auto equipment operator positions are requested. One junior mechanic position is requested to augment the present staff assigned to maintaining zoo vehicles (\$22,000).

As the visitors increase, the demand for laborer and custodial service also rises. Taking into consideration annual and sick leave and the 40-hour work-week requirement, the 17 available laborer positions and four custodial workers are not sufficient to maintain a seven-days-per-week schedule requirement. An increase of five laborer and three custodial positions and custodial supplies is requested (\$50,000). An increase is also requested in the equipment allotment to permit scheduled replacement of vehicles and scooters (\$15,000).

Operations and Maintenance Department

The Operations and Maintenance Department has responsibility for all plant maintenance and supporting services. These include:

- Operational services: automotive maintenance; operation of trucks and heavy equipment; trash collection; sweeping of streets and walks; snow removal; and janitorial services.
- Maintenance and construction: maintaining and repairing 15 major buildings and wide range of cages and other facilities. This unit also performs renovation and minor construction, and builds nest boxes, shipping crates, exhibits, and other needed items.
- Grounds: maintaining and improving the 156 acres of trees, lawns, shrubs, flower beds, and indoor plantings.
- Air-heating: maintaining all heating plants and air conditioning in the buildings throughout the Park.

An increase of \$293,000 is requested to provide thirty positions for workload increases in maintenance and operational services. An additional \$13,000 are requested for necessary pay increases.

Need for Increase1. Operations and Maintenance Management (2 positions \$33,000)

A maintenance work order system to provide useful information on workbad and maintenance costs has been in operation for three years. This consists of a monthly summary report and a cumulative fiscal year report. Since there is no position available to perform the daily duties required to maintain these accounts and manpower statistics, the monthly report frequently falls 30 to 45 days behind reporting dates. This system provides manpower and material utilization reports and cost data necessary for developing systematic maintenance throughout the entire Zoo. It also provides vital information for budget requirements and projections. One production control clerk position is requested (\$7,000).

Funds are required to provide all wage-board employees in this department with work uniforms and safety supplies. There are 90 regular wage-board employees in need of instant recognition by other employees and the visiting public for security reasons. Also requested are travel funds for the O & M manager and for Zoo employees transporting animals (\$15,000).

One assistant building manager position is requested to assist the building and ground manager by performing routine estimating, inspections, and obtaining plans, bids, prices, etc., and to act in the absence of the manager (\$11,000).

2. Maintenance and Construction (5 positions \$65,000)

With the completion of the Great Flight Cage; Delecate and Hardy-Hoofed stock buildings, shelters, and areas; new roadways and parking lots; and the Hospital-Research building, the following workload has been added to the maintenance program since 1963:

--24 drains, 30 water outlets for hoses, 15 basins, 2 rest rooms, and 16 water troughs. The Hospital-Research building will have 27,000 feet of sanitation sewer, water, and vent pipes to maintain, 116 floor drains and sink waste, 8 rest rooms, 64 hot and cold water outlets, 3 disposals, 1 sterilizer, and 27 valves and controls.

--49,640 feet of fencing to be maintained.

--236 locks and 348 doors which require the repair of various type mechanisms.

--293,972 square feet of asphalt roadways and parking lots to be maintained.

The wear and deterioration of the old facilities from the action of time, elements, visitors, and animals creates a normal workload. New facilities, added to the preventive maintenance demands on the present maintenance staff, leaves many of the facilities in a state of disrepair and deterioration causing a backlog in the various trades. Only one additional electrician, one carpenter, and one steamfitter positions have been authorized for this program since 1963.

For instance, at present, there are one lead foreman, three pipefitters, and one junior pipefitter (including plumber conversions in the past 12 months) to maintain the pipes and equipment of the Zoo's heating, water, sewage, and drainage systems. These systems are located in and around 20 buildings in an area of approximately 100 acres. Due to the condition of 75 percent of these systems, emergency repairs seem to be the order of each day, creating a backlog of preventive maintenance. A backlog of 16,700 man-hours jeopardizes the safety and well being of the animals.

Two pipefitters, a carpenter, one asphalt worker, and one maintenance helper are requested with funds for building and maintenance supplies and equipment purchases on a planned replacement cycle (\$65,000).

3. Tree and Garden Maintenance (6 positions \$63,000)

There are approximately 12,000 trees in the Park. Using the International Shade Tree Evaluation Scale, the value of these trees is estimated to be \$6.5 million. There are five (including the supervisor) tree maintenance worker (climbers) positions available to prune and treat diseased trees, remove dead or hazardous trees, plant or replace trees, and feed and water trees located in public areas. There is only one grounds worker position available to assist in this work, which requires climbers to be used as ground workers. The tree section has a backlog of 24,000 man-hours of climbing work or 8-years of work with the present available positions. An addition of two grounds worker positions will increase the actual climbing hours per year and reduce this time to six years, permitting the tree section to start another cycle of preventive maintenance and insure the safety of visitors, employees, and animals (\$12,000).

Three additional grounds worker positions also are required to assist the Garden Section in maintaining the horticultural features in new areas created by the construction and improvement of the Zoo. The areas to be maintained are:

Hoofed Stock area.....	2.5 acres	Horticultural features to be pruned and sprayed.
Harvard Street Bridge area..	.5 acres	Lawn to be mowed, sodded, seeded, and fertilized.
Hospital-Research area.....	2.5 acres	Horticultural features and lawn to be maintained.

New areas and dry seasons have tripled the watering activity, adding 2,300 additional man-hours; an increase of 1,000 man-hours in pruning activities; and a minimum increase of 1,500 man-hours must be added to the weed spraying activity. Some flower beds will have to be eliminated in order to give proper maintenance to the remaining ones and to the turf and ornamental feeding (\$18,000).

One clerk-typist also is requested to perform the administrative duties of this division. At the present time, maintaining time cards, filing records, ordering supplies and equipment, typing reports and correspondence and maintaining a horticulture library consumes 75 percent of the chief of the division's time. Many of these duties fall days behind and correspondence goes unanswered because of lack of clerical personnel. A clerk would also allow the division chief to spend his time inspecting construction sites for damage to existing plants and trees; designing detailed landscape plans; estimating costs; and setting up work orders and training programs for the division (\$7,000).

Funds are sought for supplies and to replace the 40 foot skyworker. This piece of equipment is ten years old. A climber's life depends on the safety of this machine when operating the bucket 40-feet off the ground. The machine is checked by special mechanics of the District Highway Department every six months for efficiency and safety. Because of the lack of housing, the skyworker must be subjected to the elements, causing wear and deterioration. The new skyworker will reach 60 to 70 feet from the ground which will enable the climbers to eliminate a hazardous climb of 20 to 30 feet above the 40-foot bucket (\$26,000).

4. Air-heating (6 positions \$45,000)

The change from prior years of air-pollution and coal scoop engineering to a sophisticated anti-pollution and climate control system for the health and well-being of the animals involves equipment requiring constant surveillance and planned preventive maintenance. From simple operating boilers and equipment plus emergency maintenance, with preventive maintenance being performed during a few summer months, progress has been made to a system of weekly inspections with spot inspections when manpower is available. With emergency type maintenance a high factor, frequent and necessary inspections are sometimes omitted because of manpower shortages. A tight surveillance of operating conditions in buildings during all seasons is necessary to prevent over heating or extreme chilling that might cause the loss of valuable and/or irreplaceable animals. The workload is further increased by the addition of a boiler plant to operate the year around and the addition of large tonnage air conditioning for the summer months.

A comparison of manpower requirements of the present and proposed Boiler Plant operation is as follows:

	<u>Man-years Present</u>	<u>Man-years Proposed</u>
Supervisory.....	2.0	2.0
Main heating plant (three complete shifts)....	4.5	4.5
Roving watch, steam tunnel and buildings....		4.0
Hospital-Research Building (three shifts)....	4.5	4.5
Refrigeration and air conditioning mechanic..	1.0	2.0
Incinerator operator and trainee	1.0	2.0
Total	13.0	19.0

Due to the increased workload and the backlog of preventive maintenance, four boiler plant operators, one junior engineer, and a helper are requested to bring the manpower up to standards for the safety of the personnel and animal and maximum operating efficiency of the boiler plants and buildings (\$45,000).

5. Operational Services (11 positions \$87,000)

The motor pool is responsible for furnishing transportation and pickup and delivery service to all departments. It hauls ashes and debris to the Mount Vernon Boulevard Dump twice daily. Out of town trips (average one weekly) and trips to the three local airports (average four weekly) to pickup and deliver animals, require the services of an auto equipment operator. When these and other requests have first priority, the pickup and delivery services for the departments fall behind schedule. Two additional auto equipment operator positions are requested to aid in carrying out the work that is assigned to the motor pool (\$14,000).

At present there are one lead foreman, two auto mechanics, and one junior mechanic to maintain a fleet of 26 trucks, 3 station wagons, 4 jeep-type vehicles, 13 scooters, and 9 pieces of equipment. Some trucks are on the road seven days a week and others have been in service for ten years or more. One additional junior mechanic position is requested to augment the present staff assigned to maintaining all zoo vehicles (\$8,000).

An amount of \$11,000 is required to increase the vehicle replacement allotment. The cost of a truck or station wagon has increased 18 percent in the past two years. There are thirty vehicles in the Zoo fleet with an average age of 6 years. There are nine vehicles in the fleet that are ten years old or older. Replacement standards for trucks are 6 years or 50,000 miles for 1-ton or less; 7 years or 60,000 for 1 1/2 through 2 1/2 tons. Passenger cars may be replaced when they have been operated for 6 years or 60,000 miles whichever occurs first. The police vehicle must operate on a 24-hour, seven days a week basis and must remain mechanically safe for operators and passengers. This vehicle should be replaced every two to three years. This request will permit the replacement of 4 or 5 vehicles each year over the period of six years.

An amount of \$4,000 also is requested to replace three scooters used in police duties. Scooters have been invaluable in reducing the response time of patrolling officers to reach troubled or critical areas. Officers patrolling the parking areas in these vehicles appears to have a deterrent effect on the type of offenses generally committed (especially larcenies from autos).

The labor force is responsible for assisting mechanics, maintaining the fifteen major buildings, twelve public rest rooms, and sixteen employees' rest rooms in a clean, presentable, and sanitary condition, and removing trash left by visitors over the 156 acres of Park grounds. The walkways in the eight public buildings are scrubbed with detergents and disinfectant once a week and swept once a day. The assigned duties of the available four custodial workers are those of maintaining the public rest rooms in a clean and sanitary condition. Employees' rest rooms are cleaned only once a week. As the visitors increase, the demand for laborer and custodial services increases. Taking into consideration annual and sick leave and the 40-hour work-week requirement, the 17 available laborer positions and four custodial workers are not sufficient to maintain a seven-days-per-week schedule requirement. An increase of five laborer and three custodial positions and custodial supplies is requested to meet this schedule and to maintain efficiency in operations (\$50,000).

NATIONAL ZOOLOGICAL PARK
Department of Living Vertebrates

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>77</u>	<u>5</u>	<u>82</u>
11 Personnel Compensation.	\$ 720,000	\$ 45,000	\$ 765,000
12 Personnel Benefits.	57,000	3,000	60,000
21 Travel & Transp. of Persons ..	0	2,000	2,000
22 Transportation of Things	2,000	0	2,000
23 Rent, Comm. & Utilities			
24 Printing & Reproduction			
25 Other Services			
26 Supplies & Materials	155,000	20,000	175,000
31 Equipment	28,000	11,000	39,000
41 Grants			
TOTAL	<u>\$962,000</u>	<u>\$81,000</u>	<u>\$1,043,000</u>

Analysis of Total

Pay Increase	\$ 49,000	\$ 9,000	\$ 58,000
Program	\$913,000	\$72,000	\$ 985,000

Specification of Increase (Program):

Improve Divisional Supervision and Assist in Research (5 positions, \$43,000)

With the expanded activities in research and conservation, it is apparent that a professional approach must be followed to apply the animal management techniques that are fast becoming available to the conservation-oriented zoological world. This will require the services of a trained biologist to supply the exotic animal management expertise, a secretary to assist the four zoologists, and three special keepers to accomplish the research and breeding efforts (\$43,000).

Acquisition of Animals and Increased Costs of Food and Sundry Supplies (\$29,000)

An increase in the animal acquisition fund (\$5,000) is needed to provide an adequate number of interesting and unusual specimens for a well-balanced and educational zoological collection. The present allotment for the acquisition of animals, which includes purchase prices and/or shipping charges, is \$25,000. An increase in the food allotment, sundry supplies, uniforms and equipment is requested to cover increased costs. Funds also are requested to provide for travel of five zoologists to attend annual meetings of their professional societies, visit other zoos, and collect native species of birds, mammals, and reptiles for exhibit.

Department of Living Vertebrates

The Department of Living Vertebrates is responsible for approximately 3,200 animals of over 1,100 species, representing one of the largest and most varied collections of exotic animals in existence. To support this collection, the Department conducts an animal care program involving feeding, cleaning of cages, and exhibition. Included in the animal care program are pest control efforts to eliminate insects and rodents and a commissary program for ordering, receiving, storing, preparing, and delivering animal food, as well as raising special food items. In addition to these major activities, the staff collaborates with the Animal Health Department, the Scientific Research Department, and

the Pathology Office to improve the medical treatment of animals, collect medical data, evaluate medical programs, and develop, investigate, and support various research programs.

An increase of \$72,000 is requested to provide five positions to accomplish the research workload and to cover the rapidly rising costs of animals, animal food, sundry and uniform supplies, and equipment as well as to provide for travel of five professional staff members in this department to attend annual meetings of their professional societies. An additional increase of \$9,000 is sought for necessary pay increases.

Need for Increase--There are four zoologists who require secretarial assistance. The various headkeepers also are in need of clerical aid at various times. The services of other secretaries within the Park have been utilized when time permitted. This situation is often difficult and far from satisfactory for efficiency in over-all operations. One secretary position is requested (\$7,000).

One wildlife biologist position is requested to aid in divisional supervision of animal care. With the expanded activities in research and conservation, it is apparent that a professional approach must be followed to apply the animal management techniques that are fast becoming available to the conservation oriented zoological world. Trained biologists would supply the exotic animal management expertise not before available to this Zoo. In zoos, as in the cattle or poultry industry, there is a need for professionals trained in animal husbandry to apply scientific knowledge rather than tradition to such specialized areas as nutrition, propagation, and sanitation. The biologist would also serve important functions in keeper training, improved exhibition, and collection planning (\$12,000).

Three special keeper positions and funds for equipment are requested to assist the zoologists in research and breeding efforts. These consist of extensive incubation, hatching, and rearing programs and the collection of behavioral and natural history data on special animal groups. The efforts to breed rare and endangered species demand close supervision by a keeper specialist. The collection of data is accomplished through observations, instrumentation, weighing, measuring, and animal care. Due to the compelling duties for the routine care and protection of the animals by the animal keepers, there is no position available that can be assigned to this phase of the operations (\$24,000).

The animal acquisition program is aimed at providing an adequate number of interesting and unusual specimens for a well-balanced and educational zoological collection. The present allotment for the acquisition of animals, which includes purchase prices and/or shipping charges, is \$25,000. An increase of \$5,000 is requested. There has been no increase in these funds since 1965. Animal prices have risen rapidly in the past six years. In the past, the Zoo has relied heavily on gifts and exchanges. It is rarely possible, however, to stipulate the species, ages, sex, and condition of gifts; and exchanges are dependent on what other zoos have in surplus. These two methods tend to yield an unbalanced collection. The Zoo's collection objectives can be fulfilled only by purchasing animals of selected species.

Additional funds are requested for the food allotment to meet steadily rising prices. Approximately \$138,000 are now available to purchase animal food. The Commissary makes every effort to obtain surplus food at reduced prices, but this is frequently of low quality. The replacement prices for sundry supplies and uniforms and equipment also have risen sharply. Funds are requested to cover the increased cost and usage of these items (\$23,000).

Funds also are needed to provide for travel of five zoologists to attend annual meetings of their professional societies, visit other zoos to become familiar with their operations and collections, and collect native species of birds, mammals, and reptiles for exhibit (\$1,000).

NATIONAL ZOOLOGICAL PARK
Scientific Research Department

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>6</u>	<u>1</u>	<u>7</u>
11 Personnel Compensation.....	\$ 73,000	\$ 21,000	\$ 94,000
12 Personnel Benefits.....	6,000	2,000	8,000
21 Travel & Transp. of Persons	0	1,000	1,000
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction.....			
25 Other Services			
26 Supplies & Materials	2,000	5,000	7,000
31 Equipment	3,000	5,000	8,000
41 Grants			
TOTAL.....	\$ 84,000	\$ 34,000	\$ 118,000

Analysis of Total

Pay Increase	\$ 5,000	\$ 3,000	\$ 8,000
Program	\$79,000	\$31,000	\$110,000

Specification of Increase (Program):

Improve Scientific Research Efforts and Care of Research Animals
(1 position, \$31,000)

The Hospital-Research Building was completed and occupied in January 1970. Request is for one reproduction physiologist position (\$17,000) to collect behavioral data, and treat the data in such a way that it will generate fruitful hypotheses for analyzing the physiological mechanisms underlying certain expressed behavior. Funds are requested to provide for three temporary employees (\$7,000) during the summer months to permit the regular employees to take leave. An increase in the supplies and equipment allotments is requested to cover increased costs (\$6,000). Funds also are requested to provide for travel of three scientists to attend annual meetings and seminars (\$1,000).

National Zoological Park
Scientific Research Department

The Scientific Research Department undertakes studies of animal behavior, reproduction, and nutrition. The Zoo collection is a major scientific resource. For this reason, facilities and assistance are often provided to scientists from federal agencies such as the National Institutes of Health as well as from universities. The Zoo's own scientific studies add to man's understanding of the living world. Investigations undertaken in the Zoo and in the field have yielded numerous scientific publications. The work of the Scientific Research Department results in improved care of animals in the collection, as reflected in their well-being and reproduction. This work is also of benefit to other zoos and animal collections. In addition, the Scientific Research Department is of assistance to other organizations, including foreign governments concerned with wildlife management and conservation. The Department provides training and research opportunities for graduate students.

An increase of \$31,000 is requested to provide one position to improve research efforts; provide for temporary employees; cover the increased costs of supplies and equipment; and to establish a travel allowance for three scientists. An additional \$3,000 are requested for necessary pay increases.

Need for Increase--The new Hospital-Research Building provides facilities for extensive research necessary for caring and rearing of animals in captivity. One reproduction physiologist position is requested to collect behavioral data, and treat the data in such a way that it will generate fruitful hypotheses for analyzing the physiological mechanisms underlying certain expressed behavior; to develop studies that are required to determine growth and the ontogenesis of behavior, especially with respect to sexual behavior; and to gain knowledge of hormonal treatments and their effects on animal behavior (\$17,000).

There are two animal keeper positions available to care for the animals under study seven-days-per-week. Funds are requested to provide for three temporary employees during the summer months to permit the regular employees to take leave. This is to assure that the best care is given to these animals (\$7,000).

Funds also are requested to provide for the increased cost and usage of research supplies and equipment and to establish a travel allowance for the three scientists to attend annual meetings and seminars (\$7,000).

NATIONAL ZOOLOGICAL PARK
Animal Health Department

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>5</u>	<u>4</u>	<u>9</u>
11 Personnel Compensation.....	\$ 64,000	\$ 34,000	\$ 98,000
12 Personnel Benefits.....	5,000	2,000	7,000
21 Travel & Transp. of Persons	0	2,000	2,000
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction			
25 Other Services			
26 Supplies & Materials	7,000	5,000	12,000
31 Equipment	5,000	12,000	17,000
41 Grants			
TOTAL.....	<u>\$ 81,000</u>	<u>\$ 55,000</u>	<u>\$ 136,000</u>

Analysis of Total

Pay Increase	\$ 4,000	\$ 1,000	\$ 5,000
Program	\$77,000	\$54,000	\$131,000

Specification of Increase (Program):

Improve the Medical Treatment (4 positions, \$54,000)

In order that basic biomedical research devoted toward improvement of the care of collection animals, development of physiological norms, and more in-depth study of therapeutic regimes be broadened, three positions are requested (associate veterinarian, medical technologist, secretary for \$34,000) to care for hospitalized animals, one keeper position and supplies and equipment are requested (\$16,000). Additional funds are needed to meet the increased cost of medical supplies (\$2,000) and funds to establish a travel allowance (\$2,000) for the three professional staff members to attend annual veterinarian conferences and educational seminars.

Animal Health Department

The Animal Health Department is responsible for the maintenance of the health of the animal collection of 3,200 living specimens of 1,100 species. This requires: clinical treatment of illnesses and injuries; prophylactic procedures; using clinical pathological data to assist in diagnosis of diseases and formulation of effective treatment regimens; and collaboration in biomedical research directed toward a broader knowledge of disease processes in exotic animals and their treatment. The staff of the Animal Health Department consults and collaborates with investigators from governmental agencies and academic institutions in the solution of problems of mutual interest.

An increase of \$54,000 is requested to provide four positions to improve medical treatment and care for the hospitalized animals; to cover the increased costs of supplies; and to establish a travel allowance for three professional staff members. An additional \$1,000 are requested for necessary pay increases.

Need for Increase--In order that basic biomedical research devoted toward improvement of the care of collection animals, development of physiological norms, and more in-depth study of therapeutic regimens be broadened, three positions are requested: associate veterinarian, medical technologist, and a secretary (\$34,000).

There is one veterinarian position available to maintain an around the clock call schedule. An associate veterinarian will alleviate the necessity of one person being on duty 24-hours when there are emergencies. Other major problems encountered are a lack of time for study, literature search, or attendance at continuing education seminars. This is the area in which new advances in treatment regimens and medical techniques are disseminated and attendance is of inestimable value. The medical technologist will develop the physiological norms in all quarantined animals as well as studying the physiological changes in those animals that come into the Hospital as medical or surgical patients. There is also a necessity for extensive bacteriological culture examination of the necropsied animals. This will provide a broader knowledge of bacterial disease agents present in the National Zoological Park, and, through sensitivity testing, permit the more rapid establishment of prophylactic measures to protect the cagemates that have been exposed to the disease. Secretarial assistance is necessary to maintain the increased clerical workload on a current status as a direct result of changes being made in Hospital operations and medical record keeping.

The increase in animal holding space will permit the hospitalization of ill patients presently impossible in the existing quarters. By hospitalization and improved observation of these animals, it is reasonable to expect a higher percentage of cure. It will assure that proper medication at regular intervals will be administered and a much closer evaluation of the patients' progress will be made. Provision of adequate, centralized quarantine facilities will insure continuing observation of quarantined subjects and permit the use of laboratory studies not presently possible with the subjects scattered throughout the Zoo in substandard quarters and with sometimes very limited observation. This facility will also protect against the possibility of the introduction of diseases into the static animal collection. The institution of a nursery facility will centralize the handrearing of baby animals under stricter observation and supervision of nursery techniques. The present program of "farming out" baby animals to keepers, secretaries, and friends obviously must be stopped. With this centralized facility, particularly in the same physical location as the Scientific Research Department, a continuing study of behavioral traits of the specimen during infancy, growth and growth-rate statistics will be provided. The one keeper position is not sufficient for a 7-day-per-week operation and care of hospitalized animals. An addition of one keeper position and supplies and equipment is requested (\$16,000).

An amount of \$2,000 is required to meet the increased cost of medical supplies and \$2,000 to establish a travel allowance for the three professional staff members to attend annual veterinarian conferences and educational seminars.

HISTORY AND ART

The Smithsonian possesses an unequalled array of resources, both material and human, for the understanding and illumination of our country's history through its material culture, its technology, and its art. No other Institution has a greater and more exciting opportunity to demonstrate and celebrate what Americans--all Americans--have accomplished.

As the custodian of national collections comprising literally millions of historic objects and works of art, it is our responsibility to make sure that these collections are used as effectively as possible for the benefit of all. We must care for these collections, we must make them available to scholars both from our own staff and from the broader academic community, and we must use them intelligently and imaginatively to help tell the story of American civilization to our millions of visitors and, through publications and traveling exhibitions, to an even wider audience. It is also our responsibility to seek the continued growth of these national collections; as we are the beneficiaries of the foresight of past generations, so must we be the benefactors of future generations, passing on to them the fruits of our stewardship.

With one essential exception, the Joseph H. Hirshhorn Museum and Sculpture Garden, the budget requests in the area of history and art are modest, reflecting our determination to fulfill our obligations and to realize our opportunities as economically as possible. The increases requested for the History and Art activities amount to \$1,245,000, or 14 percent of the total Institutional requested increase.

Although many history and art bureaus of the Smithsonian have received no increases in operating funds during the past two or three years, and although inflation has caused many of them to suffer in effect a decrease in funds, we have sought insofar as possible, to meet our needs out of existing resources. To this end, we have undertaken to terminate some activities and to reduce others drastically--for example, the International Art Program, the Smithsonian Journal of History, and temporary exhibition programs in all our museums. We shall continue to scrutinize all our activities with a view to maintaining a strong sense of priorities. At the same time, with the enthusiastic cooperation of our museum and bureau directors, we have encouraged cooperative efforts among our history and art bureaus in the name of efficiency and economy; shared library and conservation facilities, for example, serve the National Collection of Fine Arts and the National Portrait Gallery better and more cheaply than would separate ones.

Despite these efforts, which will continue, certain real needs hamper the effective operation of many of our history and art bureaus and prevent us from deriving the full benefits from the investment that has been made in them. The requested increases that follow represent, in our judgment, the minimum amounts needed to partially correct the most pressing of these shortages.

NATIONAL MUSEUM OF HISTORY AND TECHNOLOGY

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>158</u>	<u>-1</u>	<u>157</u>
11 Personnel Compensation.....	\$ 1,943,000	\$ 63,000	\$ 2,006,000
12 Personnel Benefits.....	154,000	5,000	159,000
21 Travel & Transp. of Persons	43,000	0	43,000
22 Transportation of Things			
23 Rent, Comm. & Utilities	4,000	10,000	14,000
24 Printing & Reproduction.....	3,000	5,000	8,000
25 Other Services	21,000	45,000	66,000
26 Supplies & Materials	10,000	22,000	32,000
31 Equipment	31,000	148,000	179,000
41 Grants			
TOTAL	<u>\$ 2,209,000</u>	<u>\$ 298,000</u>	<u>\$ 2,507,000</u>

Analysis of Total

Pay Increase	\$ 88,000	\$ 68,000	\$ 156,000
Program	\$2,121,000	\$230,000	\$2,351,000

Specification of Increase (Program):Support for Planned Museum Programs (\$230,000)

The National Museum of History and Technology, a systematic general museum devoted to the historical and technological achievements of the Nation, now has attendance approaching 6,000,000 visitors a year. It has developed an explicit set of purposes and principles to guide its planning and its current activities. Specifically, these are:

- to widen, deepen, and enlarge the exhibits and the visitors' museum experience;
- to become a more important, more attractive, more lively, and more seminal center for scholarly study, interpretation, and reinterpretation of American civilization and the history of technology;
- to widen its reach to all ages and conditions, both in Washington and throughout the nation and the world;
- to make the Museum a place for emphasizing the positive, discovering the extent and the limits of our national achievements and the achievements of man; and
- to emphasize, dramatize, and interpret the relevance of past to present.

These purposes can be achieved with no immediate increase in personnel if certain urgent non-personnel shortages can be corrected. An increase of \$230,000 is requested for a wide range of essential supplies, services, and equipment needs.

NATIONAL MUSEUM OF HISTORY AND TECHNOLOGY

1970 Actual.....\$2,149,000
 1971 Estimate.....\$2,209,000
 1972 Estimate.....\$2,507,000

The National Museum of History and Technology, a systematic general museum devoted to the historical and technological achievements of the Nation, is the most successful and important institution of its kind in the United States. Since its opening in January 1964, it has been visited by more than 30,000,000 people. Attendance is approaching an annual rate of 6,000,000--the greatest in the world. Under its distinguished new director, Daniel J. Boorstin, the NMHT has developed an explicit set of purposes and principles to guide its planning and its current activities:

- I. To widen, deepen, and enlarge the exhibits and the visitors' museum experience.
 - A. Toward a more total and more vivid, a more personal, a more participatory and a more communal recapturing of man's experience.
 1. By including parts of man's experience until now neglected or ignored: food, shelter, and clothing; heating and cooling; modes of educating, self-educating, and informing.
 2. By employing new techniques and the most effective forms of older techniques: by making our exhibits more selective, our interpretation more widely intelligible, and drawing more freely on all techniques of photography, sound, and sensory stimulation to reinforce and vivify the impressions of objects; by directing visitors movement in parts of the museum (e.g., by corridors).
 - B. Toward a more total and more vivid and more personal and more communal recapturing of the kinds of men and women who have made America, and their relation to all men.
 1. By explicit demonstration of the origins, original experiences, ways of arriving and experiences after arrival, of the diverse strains of the American people.
 2. By explicit demonstration of the impact of American civilization on the world, the backwash of American peoples to their places of origin.
- II. To become a more important, more attractive, more lively, and more seminal center for scholarly study, interpretation, and reinterpretation of American civilization and the history of technology.
 - A. Toward attracting visiting scholars, immersing them in the concerns of the museum and drawing on their knowledge, imagination, and ideas for museum activities.
 1. By attracting the ablest and most imaginative, established scholars, and the most promising younger scholars: as consultants, part-time or visiting curators, or advisers on particular exhibits and projects; as research scholars: offering them improved and attractive facilities in library, research collections, offices, and secretarial assistance.
 2. By numerous, current, and monumental contributions to the scholarship of American civilization: as in the Smithsonian Encyclopaedia of American Life, pamphlets, and books with the widest reach.
- III. To widen our reach to all ages and conditions both in Washington and throughout the nation and the world.

- A. Toward a more effective, more widespread, more inclusive, and more continuous reach to press, radio, television: a stream of stories of the events in the Museum; planning of more and more newsworthy and widely-interesting interpretations of our activities.
 - B. Toward reaching all age groups and interest groups: preparation of interesting and understandable exhibits and programs for younger children, for visitors from abroad, and for the undereducated at home; interpretations of American history and technology more intelligible to nonexpert adults (special dramatic and other programs and a special area for younger children).
 - C. Toward a more effective connecting with holiday and festive occasions: celebration of national anniversaries, the birthdays of history-making Americans, and anniversaries in the history of the American standard of living and epochs in science and technology.
 - D. Toward a more effective tying of all events occurring in our museum to the large and explicit purposes of the National Museum of History and Technology.
 - E. Toward a more effective orientation and guiding of all visitors: by brochures, publications, orientation center at entrances, motion pictures, live guide services, informing of guards, etc.
- IV. To make the National Museum of History and Technology a place for emphasizing the positive, discovering the extent (as well as the limits) of our national achievements, and the achievements of man.
- A. To emphasize the greatness of individual man: by interpreting, dramatizing, and explaining the careers of history-making Americans: the discovery and rediscovery of American heroes.
 - B. To explore the epochs of great achievement, and the circumstances which helped make them possible: by exhibits on creative periods of American History and of the history of technology, and the social conditions which helped make these possible, e.g., in the exhibits, "What Makes a Creative Moment?"
 - C. To explore and remind Americans of their institutions--how they came into being and how they have changed: by a fuller exhibit of our political and social institutions, and institutions which have helped make the American standard of living (e.g., the businessman, newspapers, advertising, labor unions, public schools, universities, museums, etc.).
 - D. To help give meaning and content to national holidays (e.g., Thanksgiving, Fourth of July, Washington's Birthday, Memorial Day, etc.).
- V. To emphasize and dramatize and interpret the relevance of past to present.
- A. By current and changing programs of orientation.
 - B. By new programs of publication in print, on radio, television, etc.
 - C. By conferences and new exhibits and new kinds of museum experiences.

The director and staff of the Museum believe that these purposes can be achieved with no immediate increase in personnel, if certain urgent non-personnel shortages can be corrected. At present, the Museum has available only about five percent (some \$100,000) of its appropriation for support activities. An additional \$298,000 are requested for the following purposes:

Shortages by Category of Expense

11 & 12

Mandatory increases in pay.....\$68,000

23

Rent high-speed photocopying unit to replace outmoded machine \$10,000

24

Purchase photographs for research. Print exhibit catalogs 5,000

25

Contract for lectures by visiting scholars 5,000

Training for existing professional and nonprofessional staff to
increase competence and efficiency 3,000

Purchase service contracts for maintenance of typewriters and
dictating machines 2,000

Contract with expert consultants for long-range planning of major
programs and exhibits 15,000

Contract with architectural restoration experts for reconstruction
and restoration of period rooms now owned, but in storage 20,000

26

Purchase office supplies 5,000

Purchase photographic supplies--film, flashbulbs, and chemicals 2,000

Purchase exhibits maintenance supplies 15,000

31

Purchase office furniture and furnishings 10,000

Purchase urgently needed storage cases for visible storage of
collections in maximum security areas 20,000

Purchase storage units for offices 4,000

Replace worn-out typewriters (10 at \$700 each)=\$7,000

Purchase 10 two-machine dictating units to increase
efficiency in understaffed offices, totalling \$10,000 17,000

Replace worn out photographic equipment and purchase additional
laboratory cameras and apparatus 5,000

Purchase specimens and objects for collections necessary to
complete already constructed halls and period rooms which
cannot be opened for lack of specimens 20,000

Purchase specimens for completion of certain collections now
on display and for research 25,000

Purchase books and other reference materials for curators
and technical manuals for specialists and technicians 15,000

Purchase exhibits maintenance tools 5,000

Purchase laboratory equipment 7,000

Remodel certain offices and laboratories to alleviate crowded
and unacceptable working conditions 20,000

Total \$298,000

NATIONAL COLLECTION OF FINE ARTS

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions . .	<u>70</u>	<u>2</u>	<u>72</u>
11 Personnel Compensation \$	643,000	\$ 51,000	\$ 694,000
12 Personnel Benefits	50,000	5,000	55,000
21 Travel & Transp. of Persons	31,000	0	31,000
22 Transportation of Things . . .	30,000	0	30,000
23 Rent, Comm. & Utilities . . .	14,000	0	14,000
24 Printing & Reproduction . . .	1,000	0	1,000
25 Other Services	146,000	6,000	152,000
26 Supplies & Materials	25,000	7,000	32,000
31 Equipment	189,000	24,000	213,000
41 Grants	8,000	15,000	23,000
TOTAL	<u>\$ 1,137,000</u>	<u>\$ 108,000</u>	<u>\$ 1,245,000</u>

Analysis of Total

Pay Increase	\$ 30,000	\$ 46,000	\$ 68,000
Program	\$1,107,000	\$ 62,000	\$1,177,000

Specification of Increase (Program):Research, Exhibit, and Collections Management Support (2 positions, \$62,000)

In current and future years, the National Collection of Fine Arts expects to achieve most of its goals in research and public education in the field of American art by the judicious use of its professional staff talents and by redirecting the current level of operating funds. If this effort is to be successful, however, certain basic functions must be strengthened in order to provide a strong foundation for public service. For the budget year, these requirements fall into four areas. An amount of \$15,000 is required to fund additional research scholar grants in the study and interpretation of American art. A small increase in staff (a museum aid and a museum technician) and funds for services, supplies and equipment are needed to open and continue the new activities of the Renwick Gallery (\$25,000). In addition, the NCFR must build its funds (now about \$38,000) for the purchase of works of art in the face of rising costs and prospective donors increasing reluctance to donate. Fifteen thousand dollars additional are requested. And, lastly, \$7,000 are needed to reorganize the Museum's collections to protect them and make them more accessible to scholars and the public.

NATIONAL COLLECTION OF FINE ARTS

1970 Actual.....	\$1,015,000
1971 Estimate.....	\$1,137,000
1972 Estimate.....	\$1,245,000

The National Collection of Fine Arts is the custodian of an ever increasing national heritage of valuable acquisitions and deposits of American Art both of the past and the present. Some 13,000 paintings, sculptures, and decorative objects are included in its exhibits and reference collections. To meet responsibilities assigned by law (20 U.S.C. 76c), the museum provide a repository for Government art; carries on an active program of conservation and conservation research; lends art to the White House and cabinet offices; promotes the public appreciation of art through publications and by permanent and special exhibits in its gallery, and by sponsoring traveling exhibits within the United States and abroad through the Smithsonian Institution Traveling Exhibition Service which circulates exhibitions to small and large institutions throughout the country.

The museum's expanding education program is being developed in close association with school curricula to provide material and study programs both in Washington and throughout the country. In addition, with its varied collections, library, photographs, and archives, the NCFA provides a research center for students and scholars devoted to the study of American art. The recent addition by the Smithsonian of the Archives of American Art, a rich repository of source information for research purposes, greatly enhances its overall capabilities in this area. The NCFA is responsible for the developing activities of the Renwick Gallery to be devoted to American arts and crafts design and shares photographic and conservation laboratories and library facilities with the National Portrait Gallery.

The requested program increase of \$62,000 will be directed at strengthening educational, scholarly, and curatorial support activities and preparing for the opening of the Renwick Gallery. An additional \$46,000 are requested for necessary pay for existing staff.

Need for Increase--The objective of the National Collection of Fine Arts' education program is to discover the way in which schools and museums can best work together to make real to children and adolescents the creative freedom and expressive satisfaction which comes from the serious study of works of art. The gallery's activities in this regard will be exportable. A series of traveling exhibitions that can be done inexpensively will be presented, and classroom materials will be made available throughout the country. Attention is being paid to practical exhibiting procedures (such as the Children's Gallery and new "Discover" gallery in NCFA) and school materials to be used in conjunction with the changing needs of area and national art curricula. In 1970, it is estimated that NCFA was able to accommodate about \$14,000 of this activity within its appropriation. In current and future years, the museum administration expects to achieve most of the new goals in education and research by the judicious use of NCFA professional staff talents and by redirecting the current level of operating funds. If success is to be realized, however, the collections and curatorial support functions, i.e., the basic housekeeping operations of the gallery which are currently underfunded, need reinforcement.

An amount of \$62,000 in new funds is needed for the following purposes: to supplement research scholar grants \$15,000; for two positions in the Renwick Gallery \$10,000; \$15,000, toward increased Renwick operations costs

related to the opening of the museum to the public; a \$15,000 increase in NCFA funds for purchases of art; and \$7,000 for the reorganization of the museum's archives and collection, making them available for research activities.

To provide for the continuation of the program of research scholars on a significant scale, \$15,000 should be directed toward the research scholars program in American art, for both graduate and post-doctoral scholars to encourage sound scholarship in this much neglected field. This will provide opportunities for scholars throughout the country to work on the rich collection of materials in Washington and allow the National Collection of Fine Arts to serve as a center for the study and reinterpretation of American art. Closely allied to the exhibition and publication programs, this activity has a significant impact on both the scholarly community and the general public.

The opening of the Renwick Gallery is to take place in fall 1971, and the development of a permanent museum staff to accommodate the new activities of this Gallery is of high priority. Since both the semi-permanent exhibit galleries and the large public opening will then be inaugurated, a museum technician and a museum aid along with materials and equipment needed in advance of the opening are requested (\$25,000). About \$65,000 are available for Renwick development in the NCFA appropriation for fiscal year 1971.

Within NCFA itself, the acquisition of works of art to supply some of the embarrassing gaps in the museum's collection has become increasingly difficult owing to rising prices and a growing reluctance on the part of donors to present significant works of art. If the collection is to be other than simply a fortuitous conglomerate, the museum's acquisition program must be made more active and selective. A \$15,000 addition to the present level of acquisition funds would be a modest start in this direction. Only about \$38,000 are available for art acquisitions in fiscal year 1971.

Seven thousand dollars is needed to facilitate the systematic management of the National Collection of Fine Art's extensive holdings, inherited from many sources over the past years. The rehabilitation of many important works, and the proper organization of the Collection's archives must move forward quickly if the Collection is to be properly safeguarded and available to scholars and the public.

NATIONAL PORTRAIT GALLERY

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>37</u>	<u>1</u>	<u>38</u>
11 Personnel Compensation....	\$ 403,000	\$ 54,000	\$ 457,000
12 Personnel Benefits.....	32,000	3,000	35,000
21 Travel & Transp. of Persons	15,000	1,000	16,000
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction....	4,000	3,000	7,000
25 Other Services	177,000	7,000	184,000
26 Supplies & Materials	25,000	1,000	26,000
31 Equipment	175,000	2,000	177,000
41 Grants			
TOTAL.....	<u>\$ 831,000</u>	<u>\$ 71,000</u>	<u>\$ 902,000</u>

Analysis of Total

Pay Increase	\$ 20,000	\$21,000	\$ 41,000
Program	\$811,000	\$50,000	\$861,000

Specification of Increase (Program):Public Education (1 position, \$50,000)

The National Portrait Gallery is a unique national museum of American history responsible for collecting, exhibiting, and studying portraiture of men and women who have contributed significantly to the formation and development of the United States. It has a responsibility to use its collections of paintings, sculptures, and other resources for public education. To do this, two areas of the Gallery's basic operations need strengthening in fiscal year 1972. The History Department has had a long existing need for a chief historian to take charge of biographical and other research on the collections to assure impeccable historical accuracy in exhibits labels and related materials for the public. This will cost \$25,000 including associated reference materials. Second, the Education Department needs \$12,000 to fund part-time temporary personnel to conduct teaching tours of the exhibits and to prepare teaching materials. Some 300 children each month receive tours, but the program is growing. An additional amount of \$13,000 is requested to prepare three special teaching exhibits of special interest to school groups and to prepare related printed materials for classroom use.

NATIONAL PORTRAIT GALLERY

1970 Actual	\$768,000
1971 Estimate	\$831,000
1972 Estimate	\$902,000

The National Portrait Gallery is a unique national museum of American history responsible for collecting, exhibiting, and studying portraiture in painting and sculpture of the men and women who have contributed significantly to the formation and development of the United States. Open to the public for only two years (since October 1968), the Gallery is still developing its staff and programs, particularly in the History and Education Departments, to meet public demands for its services.

The Gallery's current activities can be grouped into four major categories: (1) the care and expansion of the collection; (2) public education through programs with schools and through exhibition of the permanent collection and special loan exhibitions illustrating particular subject areas of American history and portraiture; (3) the research, publication, and national distribution of catalogues of these exhibitions, as well as other studies, both scholarly and popular in nature, related to the subject of American historical portraiture; and (4) the compilation of a definitive Catalogue of American Portraits to be a comprehensive data bank and national information service on American history and biography comprised of entries on all portraits of historically significant Americans.

An increase of \$50,000 in program funds is needed to support the activities of the History and Education Departments. An additional \$21,000 are requested for necessary pay for current staff.

Need for Increase1. History Department (1 position, \$25,000)

The History Department requires a chief historian to be hired early in fiscal year 1972, culminating a two-year search for a prominent historian qualified in American history and art history (\$19,000). Basic operating support funds are needed for the chief historian's office to provide for travel, material services for office operations and personnel services by specialists in various aspects of American history and the public use of history collections, and for supplies, equipment, reference books, and materials for this new department (\$6,000). Total funding requested for this activity is \$25,000.

It is essential that a history museum have as its core a well researched collection. Initial activities of the chief historian will, therefore, involve upgrading and expanding the biographical research files on the portraits so that the historic contents of materials and exhibits for the public based on these individuals and their relations to historic events are of impeccable accuracy. At this point, only 1/10 of the Gallery's holdings of 500 portraits is thoroughly researched, and the one staff member assigned to biographical research pending arrival of the chief historian cannot keep current with new acquisitions, let alone cope with the bulk of the permanent collection.

Other major activities will be to study the permanent collection in terms of historical interpretation in its display arrangement, its labeling, and the content of printed materials distributed in the galleries, and to evaluate continually the historic content of future exhibitions being planned and researched by other members of the staff.

The History Department's efforts in both of these areas will immediately benefit the activities of the other major program to be strengthened in fiscal year 1972, the Education Department. This department is in more immediate contact with the public than any other, and it is upon its activities that the Gallery's educational services to schools, organized public groups, and individual visitors of all ages depend.

2. Education Department (\$25,000)

Most of the \$25,000 required to support a broad educational program beginning in fiscal year 1972 will provide part-time, temporary personnel to conduct teaching tours of the exhibits, to contact schools and other interested organizations, and to help research and write teaching materials based on the visual and historical content of special teaching exhibitions.

An average of 300 area school children each month are now receiving tours often tailored to their classroom needs. Many inner city teachers are discovering for the first time how the educational programs of this Gallery can make the study of American history more meaningful to their students. This use is expected to increase considerably next year, and the Gallery must provide a teaching staff to meet those demands.

The number of school and other public groups the Gallery can serve through tours is directly proportional to the numbers of trained volunteers and part-time paid teaching staff available to supplement the small permanent administrative and research staff of the education department (curator, secretary, and temporary researcher). These non-permanent staff visit schools to meet classes and discuss prospective visits with teachers, provide teaching materials based on the exhibits, conduct tours in the Museum tailored to the teacher's needs, and provide any desirable follow-up contact with the teacher and the class.

The core of this part-time teaching staff--comprised of persons with teaching experience, and graduate and undergraduate students--must be paid to assure that they will reliably meet the rigorous study requirements and demanding schedules of the educational program on a regular basis. Based on a projection of this year's experience using only available volunteers, the Gallery needs funds for the equivalent of two man-years of work (\$12,000). This will guarantee 80 hours of trained teaching staff each week. These paid staff will work with and be supplemented by approximately two dozen volunteers who give a few hours each week to the Gallery as their time allows.

In addition to educational activities based on portraits in the permanent collection and on major loan shows arranged twice yearly, one-room teaching exhibitions are produced by the Museum to focus in depth on one individual or topic of particular interest to school groups. These exhibits contain portraits, audio-visual materials, personal objects, and other historical information especially designed and labeled in a compact gallery area to provide an environment offering teachers or Gallery staff several possible directions for leading discussions and stimulating student learning. To provide two of these exhibits during the school year, at least one of which will study persons involved in the history of the District of Columbia, and another during this summer, funding of \$6,000 is requested.

Based on research and visual information gathered for the exhibits, the Gallery plans to produce classroom materials containing much more visual information than is normally found in available literature on the subjects. The writing and content will be aimed at the various student reading and comprehension levels. Teachers can use these materials to prepare students for the visit, to reinforce the visit afterward, and as a permanent resource after the exhibit is disassembled. For coordinating the curriculum research and writing of these

brochures and pamphlets for the teaching exhibits, the Gallery needs \$4,000 for temporary personnel to help the regular staff. For printing and reproducing these teaching materials to supplement the exhibit in the Gallery and to extend its use in the classroom \$3,000 are required.

Fiscal Year 1971 Activities of the National Portrait Gallery

Within the major program categories identified at the beginning of this justification, there are a number of recent developments and accomplishments. The NPG is expanding and upgrading its small permanent collection through acquisitions from commercial galleries and private individuals, as well as by gifts. In the past two years 106 portraits were added at a total cost \$391,640. The curatorial staff is preparing catalogs and planning exhibitions to be held this spring (portraits by American Revolutionary War period painter Henry Benbridge) and fall (portraits illustrating the history of the performing arts in America to coincide with the opening of the Kennedy Center). The Gallery's Fall 1970 show presented the life portraits of John Quincy Adams together with personal objects related to his life. Portraits for these shows are located and borrowed by the Gallery from museums and individuals in this country and abroad, a process often requiring two or more years advance research and planning by the Gallery staff.

Where no formal education program existed one year ago, the Gallery is training two dozen volunteer docents to conduct educational tours. Contacts are being made with metropolitan area schools and with organizations serving schools and teachers locally and nationally. To the extent limited resources can be temporarily borrowed from other programs, the Gallery has funded the research and production of experimental aids and one-room exhibits designed for use by tour leaders and teachers.

The Catalogue of American Portraits has standardized its computer entry forms and processes in cooperation with the Smithsonian's Information Systems Division and is entering information regularly obtained from correspondence and staff visits to nearby collections such as Mt. Vernon. The CAP handles continuing requests for portrait information from both scholars and the general public. Forty thousand portrait prints in the collection are being sorted and inventoried. Finally, 18,000 partial portrait entries gathered by researchers contracted between 1964 and 1967 are being definitively researched and processed into the data bank. In addition, the CAP is forming a roster of possible field researchers in various locales and gathering information on the logistics of collecting widely scattered portrait data.

Research is being performed on subjects related to American portraiture by two members of the staff. Two contract scholars are researching an exhibition catalog and exhibit on portraits of the American Negro to be held in spring 1972, and a separate publication on the same subject to be distributed nationally. The assembled papers and archival materials will remain with the research resources of the NPG.

The exhibits staff has continued to upgrade the appearance of the galleries and to provide for the display of the growing collection. A suite of first floor galleries was prepared for the John Quincy Adams exhibition designed as a versatile exhibit area which will be the location of all major temporary loan exhibitions in the future. Other projects are the formation of a new acquisition gallery area, the improvement of graphics to direct and inform visitors, the installation of a first-floor lounge area, and a redesign of the vestibule and foyer to be a more welcoming and informative entrance to the Gallery, including an orientation exhibit and film about the history of portraiture and how to look at portraits in the Gallery. The production shop and silk screen facilities have been improved to provide in-house capabilities for constructing cases, pedestals, posters, labels to reduce some of the costs of exhibition production and a reliance on contracted exhibit production services.

Summary and Future Goals

The additional \$50,000 requested here will enable the Gallery to take the next logical step in fulfilling the goals set forth by Congress when establishing the Gallery in 1962.

Prior to fiscal year 1971, the primary goal was establishment and management of the collection. With stress on developing an exhibits staff during the past year and plans for the History and Education Departments next year, the Gallery is focusing now on relating and exhibiting the collections to the public. It is in the public education category that the new program funds will enable expansion.

Continued basic staffing and program support in the coming years is necessary for the National Portrait Gallery to reach maturity as a fully operative national history museum and reference center. By the mid-1970's, when interest in American history will be heightened by activities commemorating the Bicentennial, it should be prepared to serve the public broadly through relevant exhibitions, scholarly and popular materials and programs, and through dissemination of information on historical portraiture from the computerized Catalogue of American Portraits.

JOSEPH H. HIRSHHORN MUSEUM AND SCULPTURE GARDEN

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	18	3	21
11 Personnel Compensation.....	\$ 174,000	\$ 72,000	\$ 246,000
12 Personnel Benefits.....	11,000	6,000	17,000
21 Travel & Transp. of Persons	6,000	3,000	9,000
22 Transportation of Things	3,000	0	3,000
23 Rent, Comm. & Utilities	40,000	5,000	45,000
24 Printing & Reproduction.....	2,000	2,000	4,000
25 Other Services	162,000	97,000	259,000
26 Supplies & Materials	9,000	16,000	25,000
31 Equipment	9,000	400,000	409,000
41 Grants			
TOTAL.....	\$ 416,000	\$ 601,000	\$ 1,017,000

Analysis of Total

Pay Increase	\$ 8,000	\$ 14,000	\$ 22,000
Program	\$408,000	\$587,000	\$ 995,000

Specification of Increase (Program):Meeting Target Date for Building Opening (3 positions, \$587,000)

The operating staff of the Joseph H. Hirshhorn Museum and Sculpture Garden will continue to be expanded. Three additional members are being sought in the budget year, a registrar, administrative assistant, and clerk typist (\$23,000) plus additional funds in other objects (\$33,000) and funds to annualize part-time positions authorized in 1971 (\$41,000). These funds will be added to the current budget and form the nucleus of the continuing budget for the Museum.

Additional funds (\$50,000) are requested to continue with the program of conservation and framing of the collection for its initial opening in the new gallery.

Funds for the design and production of storage screens (\$400,000) are being requested. Since this is a sizeable job it will be considerably cheaper to let the bid for the entire job at one time instead of doing the work in increments. These screens need to be placed on the top floor of the museum as soon as possible in order for the physical move of the collection to Washington to take place.

Funds are needed for the equipment necessary to set up three work rooms. (\$40,000). The carpentry, frame and paint shops have been chosen to be equipped first because they seem the most essential to the immediate operations of the building as construction work is completed. These shops will be useful as the collection is moved and uncrated and hung in storage. Immediate attention to small repairs will save wear and tear of having to repack and reship the works that might be in need of modest work.

JOSEPH H. HIRSHHORN MUSEUM AND SCULPTURE GARDEN

1970 Appropriation.....	\$ 308,000
1971 Estimate.....	\$ 416,000
1972 Estimate.....	\$1,017,000

The Hirshhorn Museum, now under construction on the Mall, will house the magnificent gift to the nation of more than 7,000 paintings and sculptures. The Act of November 7, 1966, authorized construction of the Museum and designated the Mall site. Building construction began in March, 1970, and the estimated completion is October, 1972. All phases of work are presently geared to prepare for the opening of the Museum and to place it in operation.

An increase of \$587,000 for fiscal year 1972 will be used for acquiring equipment and furnishings to facilitate an early transfer of the collection to Washington as portions of the building become ready for outfitting and occupancy and for expanding the basic and continuing operations. The former item for equipment and furnishings consists of one-time, non-recurring costs, which are phased over two years. The attached table provides a detailed flow of projected operations for fiscal years 1972, 1973 and 1974, as related to the expected growth prior to and immediately following an anticipated public opening six to nine months following the completion of the building. An additional \$14,000 is sought for necessary pay purposes.

Need for Increase--In order to bring this major new Museum into existence, a dramatic acceleration in operating program activity must take place during the two and one-half year building construction period. This will require a very substantial increase in program funds over this period in order to meet the projected public opening date. Major additional funding requirements are in two categories: ongoing preparation of the collection, and the acquisition of furnishings and special equipment for the building.

Approximately twelve hundred choice paintings and pieces of sculpture are being selected from the more than 7,000 items in the collection for exhibit when the Museum opens. These paintings and pieces of sculpture must be examined, photographed, mounted, cleaned, and in some cases restored prior to exhibition. The total cost of this effort in fiscal year 1972, is estimated at \$200,000 for such contractual services.

Of these 1,200 items, 600 are paintings and 600 are sculptures. Based on a survey of the restoration and framing requirements of these items the following funding needs have been projected which total \$565,000. Some objects are included in two categories.

- 100 large paintings (5 to 15 feet) will need restoration at an average cost of \$1,000 (\$100,000) and 50 will require work at \$300 each (\$15,000).
- 350 small paintings will require restoration at prices ranging from \$250 to \$500 (\$150,000).
- 500 paintings must be framed at prices averaging \$200 for a total cost cost of \$100,000.
- 400 sculpture pieces, including about 150 which are classed as monumental, will require restoration at prices averaging \$500. Estimated total cost of the job is \$200,000.

Approximately 350 paintings have been restored, conserved, and framed during fiscal years 1969 and 1970, and are now completed for initial exhibition display. These include items that required both conservation and framing.

In fiscal year 1971 it is estimated that an additional 300 items will be completed, so that by the end of the fiscal year about 50 percent of the work for the opening will be completed.

The additional funds requested for conservation and framing in fiscal year 1972 (\$50,000) will allow for completion of nearly 90 percent of the total number of items planned for use in the opening exhibition. Fiscal year 1973 will be devoted to completing the remainder of the initial showing.

An increase in technical and support staff is required to prepare for the Museum's opening and subsequent exhibition and research programs. This staff must: negotiate with conservators and other contractors, and follow up on work in progress; conduct research and documentation for the opening exhibition as well as continue with the cataloging of the entire collection; and continue the Museum's present public services such as loans, photographic requests, and research queries. Three additional staff members are requested: registrar, administrative assistant, and clerk-typist (\$23,000), plus funds to annualize new positions authorized only part year in fiscal year 1971 (\$41,000).

An additional \$33,000 are requested for other contractual service costs related to the collections, the rental of working space and services (moving items in and out of storage for inspection, conservation, framing, etc), photography to document the collections for exhibits planning and research purposes. Professional visits to art museums and galleries for research will be necessary as well as other field trips.

Non-recurring Costs

Construction costs of \$16,000,000 (\$15,000,000 appropriated by Congress and a \$1,000,000 gift by Mr. Hirshhorn) will provide the Institution with the basic Museum building, including necessary utility equipment and connections. This amount does not permit the Museum to be completed to the point necessary for public opening or for conducting basic educational functions. It does not prepare the galleries or public areas, or furnish the administrative office space. To insure an opening to the public as soon as possible after completion of construction, it is essential that procurement and installation of furniture, furnishings, moveable equipment, and other items be provided as soon as possible. Approximately \$1,466,000 of furnishings and equipment not included in the original construction contracts (for furnishings and equipment) and necessary to prepare and make effective use of the laboratory, gallery and administrative space, have been identified as needed over the next two years. Funding for these items is being requested over two years, \$440,000 in fiscal year 1972, and \$1,026,000 in fiscal year 1973. Operating costs and non-recurring costs are identified in the following table.

<u>Operating Costs</u>	<u>FY 1971</u>	<u>FY 1972</u>	<u>FY 1973</u>	<u>FY 1974</u>
Positions	18	21	45	60
Staff Costs (Including benefits)	\$185,000	\$263,000	\$494,000	\$688,000
Conservation and restoration	150,000	200,000	100,000	40,000
Supplies & Materials & Equipment	18,000	40,000	32,000	15,000
Other (Exhibits, planning, travel, rent, etc.)	63,000	74,000	193,000	135,000
Subtotal, regular operations	<u>\$416,000</u>	<u>\$577,000</u>	<u>\$819,000</u>	<u>\$878,000</u>

Non-recurring costs

Carpentry, frame, paint shops	40,000			
Storage screens	400,000			
Coatroom furnishings & area lights			8,000	
Gallery furnishings			210,000	
Lamps and partitions			32,000	
Fourth floor furnishings			205,000	
Photography lab			27,000	
Library shelving			50,000	
Registrars office and staff lunchroom			19,000	
Stone pedestals			95,000	
Security systems			50,000	
Exterior lighting			50,000	
Examination lab			38,000	
Conservation lab			65,000	
Auditorium furnishings			67,000	
Tour guides			60,000	
Sales room			50,000	
Subtotal, non-recurring costs		<u>\$440,000</u>	<u>\$1,026,000</u>	
TOTAL	\$416,000	\$1,017,000	\$1,845,000	\$878,000

FREER GALLERY OF ART

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>7</u>	<u>1</u>	<u>8</u>
11 Personnel Compensation.....	\$ 49,000	\$ 8,000	\$ 57,000
12 Personnel Benefits.....	4,000	1,000	5,000
21 Travel & Transp. of Persons			
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction.....			
25 Other Services			
26 Supplies & Materials	3,000	15,000	18,000
31 Equipment			
41 Grants			
TOTAL.....	<u>\$ 56,000</u>	<u>\$ 24,000</u>	<u>\$ 80,000</u>

Analysis of Total

Pay Increase	\$ 2,000	\$ 3,000	\$ 5,000
Program	\$54,000	\$21,000	\$75,000

Specification of Increase (Program):Support of Research and Care of the Collections (1 position, \$21,000)

Freer endowment funds provide for the purchase of objects and for the development and study of the collections. Federal funds, in accordance with the Deed of Gift, are to be used for general support purposes. Funds are requested for a clerical position to assist research in Near Eastern Art (\$6,000) and for the purchase of storage equipment and related supplies (\$15,000).

FREER GALLERY OF ART

1970 Actual.....	\$45,000	<u>1/</u>
1971 Estimate.....	\$56,000	<u>1/</u>
1972 Estimate.....	\$80,000	<u>1/</u>

The Freer Gallery of Art houses one of the world's most distinguished collections of Oriental Art of over 10,000 objects. Including works of art from China, Japan, Korea, India, and the Near East, the collection covers paintings, sculptures, and other objects in stone, wood, lacquer, jade, pottery, porcelain, bronze, gold, and silver. Items not currently on exhibition and the library of 40,000 volumes are available and used extensively by the Gallery's staff and numerous visiting scholars and students from throughout the world. The two-fold program envisaged by the founder involves the continuing search for works of the highest quality that may be added to the collections and the continuing study of these works of art as keys to understanding the civilizations that produced them.

An appropriation increase of \$21,000 is requested to provide basic support to research, collections maintenance, and exhibition programs of the Gallery. Funds in the amount of \$3,000 are also requested for necessary pay for staff.

Need for Increase--Endowment funds provide for purchase of objects and for the development and study of the Freer collections. In accordance with the acceptance of the Deed of Gift, federal funds are to be provided and used for the upkeep, repair, guarding, heat, light, cleaning of building; repair and cleaning of collection; and recording, labeling, and moving of specimens and related services. Current federal employees are support staff. There has been a great increase in use made of Freer resources by the general public, scholars, and students; and inflation in the costs of supplies and equipment makes the current level of federal support chronically inadequate. It is our responsibility to correct this condition.

For fiscal year 1972, funds are requested to provide a clerical position for the newly-filled curator of Near Eastern Art to assist with a large backlog of accumulated work (\$6,000). An additional \$15,000 are requested for cabinets for the storage of Chinese and Japanese handscrolls and albums, and for miscellaneous office and other supplies.

1/ Excludes approximately \$300,000 in maintenance, operations, and protection support from the Buildings Management Department.

ARCHIVES OF AMERICAN ART

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>0</u>	<u>11</u>	<u>11</u>
11 Personnel Compensation.....	\$ 0	\$ 145,000	\$ 145,000
12 Personnel Benefits.....	0	11,000	11,000
21 Travel & Transp. of Persons			
22 Transportation of Things			
23 Rent, Comm. & Utilities	0	4,000	4,000
24 Printing & Reproduction			
25 Other Services	0	10,000	10,000
26 Supplies & Materials	0	3,000	3,000
31 Equipment	0	2,000	2,000
41 Grants			
TOTAL.....	\$ <u>0</u>	\$ <u>175,000</u>	\$ <u>175,000</u>

Analysis of Total

Pay Increase	0	\$ 0	\$ 0
Program	0	\$175,000	\$175,000

Specification of Increase (Program):Maintenance of Archives Holding (11 positions, \$175,000)

The Archives of American Art came to the Smithsonian Institution in May 1970. The several million documents in its collection constitute an aid to research and in the history of American visual arts from prior to the American to the present time. With the other resources of the National Collection of Fine Arts and the National Portrait Gallery, the Archives makes the Fine Arts and Portrait Galleries Building a major center for the study of American art. During the past year, several hundred researchers have used the Archives and a number of recent publications depended heavily on Archives documents. The \$175,000 requested for fiscal year 1972 will provide for personnel, space rental, contractual services (including microfilming), office supplies and equipment.

ARCHIVES OF AMERICAN ART

1970 Actual	\$ 55,000 ^{1/}
1971 Estimate	\$175,000 ^{1/}
1972 Estimate	\$175,000

The Archives of American Art, founded in Detroit in 1954 and a bureau of the Smithsonian Institution since May 1970, is committed to aiding research and scholarship in the history of the visual arts in this country from prior to the revolutionary war period to the present time. It acts to achieve this goal by acquiring, organizing, and preserving the primary documentation needed by historians--the correspondence, diaries, business papers, and photographs of painters, sculptors, critics, dealers, and collectors, and the formal records of galleries, museums, and art societies. These collections of paper are cataloged, microfilmed, and made available to scholars. A photograph of an item in the Archives holdings is shown on a following page.

The processing and chief reference center of the Archives is now located in space provided by the National Collection of Fine Arts and the National Portrait Gallery library. Added to the library, and to the archival material already possessed by these two museums, the Archives will make the old Patent Office building a major center for the study of American Art.

The organization expects to raise private funds amounting to about \$200,000 in fiscal year 1971. This income is used primarily to support Archives' activities outside Washington. It is hoped that this level will be maintained. The National Portrait Gallery and the National Collection of Fine Arts have helped to offset initial costs by providing facilities and earmarking some of their funds to supplement the Archives own resources. Because the Archives came to the Smithsonian after the fiscal year 1971 budget had been submitted, it was not possible to include in that budget a request for separate funds to enable the Institution to make full use of this great collection of materials. This year, \$175,000 are being requested to be appropriated for the AAA, an amount which reflects no increase over the estimated fiscal year 1971 level of funding shared by the National Collection of Fine Arts and the National Portrait Gallery.

During the past year the Archives has acquired over 100,000 individual items. Among the more important collections received were the papers of William Baziotes, Cecila Beaux, Karl Bitter, Herbert Ferber, Palmer Hayden, Ibram Lassaw, Guy Pene du Bois, and Ben Shahn. Of particular interest is a large collection of records accumulated by Charles Henry Hart, an authority on 18th and early 19th century portraiture.

The Archives' oral history program continued its activities with a series of tape recorded interviews with administrators and other figures in the New York art world. Among those people interviewed were Harvard Arnason, Ralph Colin, Lawrence Fleischman, Henry Geldzahler, Huntington Hartford, and Gordon Washburn.

Since the objective of the Archives is to serve scholarship by providing documentation to researchers, its achievement is measured by the effective use of Archives resources in the writing of exhibition catalogues, catalog raisonnés, articles, biographies, monographs. The Archives further approaches its goal by offering grants in aid, by publishing a quarterly Journal, and by disseminating information on its holdings to universities and museums.

^{1/} These amounts reflect shared costs by NCFA and NPG, and are included in the amounts shown for those galleries.

Research on the painter Stuart Davis, the Sculptor David Smith, the Black Mountain College Art Department, and the federal art programs of the 1930's are a few of the more important projects now under way. Among other recent publications which depended heavily on Archives documents are Barbara Novak, American Painting of the Nineteenth Century, N. Y., 1969; Marcia M. Mathews, Henry Ossawa Tanner, Chicago, 1969; William I. Homer, Robert Henri and his Circle, Ithaca, N. Y., 1969; and Sheldon Reich, John Marin; A Stylistic Analysis and Catalogue Raisonne, Tucson, 1970.

With the establishment of its office in Washington, D. C., the volume of use of Archives holdings has risen sharply owing to the need for documentation by the staffs of the National Collection of Fine Arts, the National Portrait Gallery, the National Gallery of Art, and student and faculty researchers at the University of Maryland and George Washington University. Since the Archives is still a recent arrival here, it anticipates a further increase in the use of its resources in the coming year.

Funding requested in the fiscal year 1972 budget will provide for administrative and curatorial personnel (\$156,000) and for space rental, contractual services (including microfilming), office supplies, and equipment (\$19,000).

NATIONAL ARMED FORCES MUSEUM ADVISORY BOARD

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions..	<u>8</u>	<u>-2</u>	<u>6</u>
11 Personnel Compensation.....	\$111,000	\$ -8,000	\$103,000
12 Personnel Benefits.....	9,000	-1,000	8,000
21 Travel & Transp. of Persons	2,000	-1,000	1,000
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction.....			
25 Other Services	29,000	-22,000	7,000
26 Supplies & Materials	1,000		1,000
31 Equipment			
41 Grants			
TOTAL.....	<u>\$152,000</u>	<u>\$-32,000</u>	<u>\$120,000</u>

Analysis of Total

Pay Increase	\$ 8,000	\$ 5,000	\$ 13,000
Program	\$144,000	\$-37,000	\$107,000

NATIONAL ARMED FORCES MUSEUM ADVISORY BOARD

1970 Actual	\$182,000
1971 Estimate	\$152,000
1972 Estimate	\$120,000

The National Armed Forces Museum Advisory Board advises and assists the Board of Regents of the Smithsonian Institution on matters related to the establishment of a national historical museum park to be known as Bicentennial Park and a study center to be known as the Dwight D. Eisenhower Institute for Historical Research. Preliminary approval has been obtained for two sites on the Potomac River, both already under federal ownership and within a short distance of downtown Washington: Fort Foote Park, in Prince George's County, Maryland, and Jones Point Park, on the southern edge of Alexandria, Virginia.

UNITED STATES NATIONAL MUSEUM

This group of activities includes a major segment of the conservation and preservation efforts of the Institution, the collections documentation function, the exhibits effort, and the leadership role of the Smithsonian in diffusing knowledge and training in these areas to the national museum community.

For fiscal year 1972, only necessary pay increases are being requested for the Office of Museum Programs, the Office of Exhibits, and small program amounts for important needs in the Conservation Analytical Laboratory and the Registrar's Office. A separate request for a major exhibition project is being requested in the special program's section, but these funds are nonrecurring in nature and are necessary to develop and improve the permanent educational displays. The increase requested for United States National Museum activities is \$183,000, or two percent of the total Institutional requested increase.

OFFICE OF MUSEUM PROGRAMS

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>9</u>	<u>0</u>	<u>9</u>
11 Personnel Compensation.....	\$ 143,000	\$ 4,000	\$ 147,000
12 Personnel Benefits.....	11,000	0	11,000
21 Travel & Transp. of Persons	8,000	0	8,000
22 Transportation of Things	2,000	0	2,000
23 Rent, Comm. & Utilities	1,000	0	1,000
24 Printing & Reproduction.....			
25 Other Services	120,000	0	120,000
26 Supplies & Materials	1,000	0	1,000
31 Equipment	18,000	0	18,000
41 Grants			
TOTAL.....	<u>\$ 304,000</u>	<u>\$ 4,000</u>	<u>\$ 308,000</u>

Analysis of Total

Pay Increase	\$ 4,000	\$4,000	\$ 8,000
Program	\$300,000	0	\$300,000

Specification of Increase (Program):Museum Services

This Office provides program planning for museum and exhibition activities, surveys visitor reactions to the Smithsonian's exhibits, and works with other museums and organizations on matters of mutual concern. No program fund increase for the operations of this Office is requested for fiscal year 1972.

UNITED STATES NATIONAL MUSEUM
OFFICE OF MUSEUM PROGRAMS

1970 Actual	\$233,000
1971 Estimate	\$304,000
1972 Estimate	\$308,000

The Office of Museum Programs provides program planning and review of the Smithsonian Institution's museum and exhibition activities with special emphasis on developing experimental and educational exhibits, surveying visitor reaction to the Institution's services, and providing advice and technical assistance to other museums. It works cooperatively with museum professionals and their associations and organizations to increase the effectiveness of museums in the performance of their scholarly and public education functions. The Office of the Registrar, the Conservation Analytical Laboratory, and the Office of Exhibits are under the general administration of this Office.

No program fund increase is sought for fiscal year 1972 for the operations of this Office. An amount of \$4,000 is requested for necessary pay purposes.

OFFICE OF EXHIBITS

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>167</u>	<u>-3</u>	<u>164</u>
11 Personnel Compensation.....	\$1,936,000	\$62,000	\$1,998,000
12 Personnel Benefits.....	143,000	5,000	148,000
21 Travel & Transp. of Persons	10,000	0	10,000
22 Transportation of Things			
23 Rent, Comm. & Utilities	1,000	0	1,000
24 Printing & Reproduction	40,000	0	40,000
25 Other Services	64,000	0	64,000
26 Supplies & Materials	127,000	0	127,000
31 Equipment	40,000	0	40,000
41 Grants			
TOTAL.....	<u>\$2,361,000</u>	<u>\$67,000</u>	<u>\$2,428,000</u>

Analysis of Total

Pay Increase	\$ 98,000	\$67,000	\$ 175,000
Program	\$2,263,000	0	\$2,263,000

Specification of Increase (Program):Maintenance of Current Exhibits Program

No program increase is sought for fiscal year 1972 for the Office of Exhibits as such. Its base resources are largely absorbed by the maintenance and upgrading of existing exhibits, the design of new permanent exhibits, and a program of changing special exhibits. A request for new nonrecurring funds for the construction and installation of a major permanent exhibition on the World of Living Things in the National Museum of Natural History is presented in the special programs section of this budget request.

UNITED STATES NATIONAL MUSEUM
OFFICE OF EXHIBITS

1970 Actual	\$2,354,000
1971 Estimate	\$2,361,000
1972 Estimate	\$2,428,000

The Office of Exhibits, in collaboration with museum scientists and historians, designs, prepares, and installs exhibitions in Smithsonian museums, and occasionally for the Smithsonian Institution Traveling Exhibition Service. Since its establishment in 1955, the Office has prepared over 3,500 permanent exhibit units primarily in the National Museum of Natural History and the National Museum of History and Technology, and has produced hundreds of special exhibits in art, history, and science. New techniques such as freeze-drying of animal and plant specimens and new methods of presentation, including audio-visual and visitor participation devices, are developed to enhance the visitor's learning experience. Many staff innovations have been copied around the world. By counseling visiting professionals and by training museum technicians from all points of the world, the Office has had a significant effect on museum installations in many countries.

No program fund increase is sought for fiscal year 1972 for the Office of Exhibits. The base appropriation is largely absorbed by maintenance and upgrading of existing exhibits, design of new exhibits, and a modest program of changing special exhibits. New permanent exhibits, space for which exists in present Smithsonian museums, will require new nonrecurring funds for construction and installation. A request for these funds is included in the special programs section of this budget request. An increase of \$67,000 is requested for necessary pay for the Office of Exhibits staff.

CONSERVATION ANALYTICAL LABORATORY

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>11</u>	<u>3</u>	<u>14</u>
11 Personnel Compensation....	\$ 113,000	\$ 26,000	\$ 139,000
12 Personnel Benefits.....	9,000	2,000	11,000
21 Travel & Transp. of Persons	5,000	0	5,000
22 Transportation of Things			
23 Rent, Comm. & Utilities	1,000	0	1,000
24 Printing & Reproduction	1,000	0	1,000
25 Other Services	7,000	0	7,000
26 Supplies & Materials	6,000	3,000	9,000
31 Equipment	12,000	24,000	36,000
41 Grants			
TOTAL.....	<u>\$ 154,000</u>	<u>\$ 55,000</u>	<u>\$ 209,000</u>

Analysis of Total

Pay Increase	\$ 6,000	\$ 5,000	\$ 11,000
Program	\$148,000	\$50,000	\$198,000

Specification of Increase (Program):Protection, Conservation, and Analysis of the Collections (3 positions, \$50,000)

Activities of the Laboratory fall into two broad areas: conservation, including preventive and remedial measures, and analysis of the composition of objects in support of research. Increased funding is required for a small fumatorium chamber and a technician to cope with serious insect infestations in the History and Technology collections (\$24,000). Two additional conservators at a cost of \$14,000 are required to care for some 13 million non-biological objects (for instance, coins) in the collections. An Ebert spectrograph (\$12,000) for analysis purposes will double current output of existing staff.

UNITED STATES NATIONAL MUSEUM
CONSERVATION ANALYTICAL LABORATORY

1970 Actual.....\$134,000
1971 Estimate.....\$154,000
1972 Estimate.....\$209,000

The Conservation Analytical Laboratory was established in 1963 to serve the museums of the Smithsonian Institution. It ascertains and advises on the suitability of environmental conditions found in the buildings for objects displayed or in storage, and suggests remedial action if necessary. Advice is given to the curatorial units on conservation procedures for specific objects. Objects which present special problems or require more specialized equipment than is available in these units are treated in the laboratory.

Analysis of objects or their materials (e.g., pigments, fibers, alloys, or corrosion products) is done by advanced instrumentation to determine appropriate conservation procedures or to provide museum archaeologists and historians with basic research data concerned with dates, attribution, and ancient production methods.

Current program shortages include the following for which a program increase of \$50,000 is requested. An additional \$5,000 are requested for necessary pay for current staff members.

Need for Increase--The lack of a fumatorium to sterilize all objects on entry into the History and Technology Building allows development of insect colonies within storage areas with consequent risk of serious and wide-spread loss of the collections. Over 30 reports of insect finds have been made in this one building in one year. Emergency actions taken on site to counter this risk are expensive in manpower, less than wholly effective, and inevitably add to the level of poison in the human environment. Funds are requested for a small fumatorium chamber (\$12,000) plus one technician to operate it (\$9,000) and to assist in sampling for analysis and supplies and materials (\$3,000).

Conservation activity falls ludicrously short of the need. With thirteen million non-biological objects in the Smithsonian collections, if only one percent of these is in need of attention, then it would require 32 man-years in order to devote 30 minutes to each. Thirty minutes is barely sufficient time to carry an object to and from this laboratory, without allowing time for any useful treatment. CAL at present has only three positions for conservators. Two additional conservators are requested (\$14,000).

Conservation activity requires supporting specialized analytical facilities. Some increase in output without increase in analytical staff or floor space can be achieved by introducing newly-available instrumentation. An Ebert spectrograph to supersede the laboratory's present instrumentation (obtained on surplus) will literally double output and will help to remove a bottleneck that is slowing conservation activity by existing staff (\$12,000).

The resources available to CAL in the fiscal year 1970 were used as shown in the accompanying diagram. This division of effort reflects needs expressed by curators that were satisfied to the maximum permitted by the available apparatus, funds, staff abilities, and space. In that year 148 requisitions (395 objects or samples) were accepted from 28 sources within the Smithsonian bureaus, and 140 requisitions (144 samples or objects) were completed, the balance being in progress at the end of the year (60 percent requisitioned treatment or advice, 40 percent analysis). In addition, training of CAL and other Smithsonian Institution personnel proceeded, national and international professional contacts were maintained, research papers published, and practical assistance given to other museums and local archaeological societies.

OFFICE OF THE REGISTRAR

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>29</u>	<u>1</u>	<u>30</u>
11 Personnel Compensation.....	\$ 223,000	\$ 12,000	\$ 235,000
12 Personnel Benefits.....	17,000	1,000	18,000
21 Travel & Transp. of Persons			
22 Transportation of Things	59,000	26,000	85,000
23 Rent, Comm. & Utilities			
24 Printing & Reproduction.....			
25 Other Services	0	16,000	16,000
26 Supplies & Materials	1,000	1,000	2,000
31 Equipment	1,000	1,000	2,000
41 Grants			
TOTAL	<u>\$ 301,000</u>	<u>\$ 57,000</u>	<u>\$ 358,000</u>

Analysis of Total

Pay Increase	\$ 8,000	\$ 7,000	\$ 15,000
Program	\$293,000	\$50,000	\$343,000

Specification of Increase (Program):Protection of Accession Records and Shipping and Mail Room Requirements
(1 position, \$50,000)

Additional funding is requested for three important areas of the Registrar's operations. A records technician and funds for contractual microfilming services (\$22,000) are required to begin the job of duplicating and protecting some 1,800,000 documents dating from 1842 which record accessions to the National Museum of Natural History and the National Museum of History and Technology. An additional \$26,000 are required to bring the level of shipping funds closer to identified requirements for the transportation of exhibits, specimens, and field equipment. An amount of \$2,000 is needed for mail room supplies and equipment to meet a growing volume of mail.

UNITED STATES NATIONAL MUSEUM
OFFICE OF THE REGISTRAR

1970 Actual	\$327,000
1971 Estimate	\$301,000
1972 Estimate	\$358,000

The Office of the Registrar was established officially in 1881. It has responsibility for recording and safeguarding the documents pertaining to the receipt and legal ownership of the objects accessioned into the National Collections of the National Museum of Natural History and the National Museum of History and Technology. In addition, the office provides essential service to support all units of the Smithsonian through the management of the central mail and messenger service, the Smithsonian shipping office, U. S. Customs clearances, public inquiries for the museums, and official foreign travel documents such as passports, visas, and work permits.

Current program shortages occur in the preservation of records, shipping, and mail service for which an additional \$50,000 are requested. Also requested are \$7,000 for necessary pay purposes.

Need for Increase--A critical area requiring prompt attention is the microfilming of the valuable accession records which consist of original papers that basically document objects in the National Collections. These unique papers date from before the establishment of the Smithsonian, the earliest dated 1842, and have never been duplicated. Their loss by fire or other disaster would seriously affect the research value of the collections. A long-term project is proposed: first, to place the estimated 1,800,000 pieces on microfilm as a precautionary measure against loss, and second, to deacidify and restore selected early papers that are brittle, torn, and badly faded. A records technician is required to separate, coordinate, and safeguard the papers during microfilming and to reassemble them for refiling (\$6,000). Support in contractual services to commence the microfilming and complete one-fourth to one-third of the filming is estimated at \$16,000.

A primary responsibility of the Registrar's Office is the transportation of exhibits, specimens, and related research items for the museums, galleries, and laboratories. The requests for this service have been growing rapidly in light of expanding activities of program units. A recent analysis indicates that approximately \$102,000 are necessary to meet expected transportation costs, but only about \$59,000 are currently available. This deficit situation has been brought about over a period of years by continued growth in requests for services, the necessity of absorbing part of salary increases, and inflationary cost increases in other areas. An increase of \$26,000 is requested to meet a higher portion of identified requirements and offset inflationary pressures in the budget year.

Mail volume continues to grow as the public becomes more aware of the Institution's activities and services. An increase of \$2,000 for mail room supplies and equipment is requested.

PUBLIC SERVICE

The Institution has not allowed itself to rest with static presentations and exhibits of collections directed at only those persons with sufficient motivation, time, or money to visit its centrally located galleries and museums. In order to be successful in conveying the richness of the nation's heritage to a wider public, and to offer additional opportunities for appreciation of its growth and development, the Institution has sought to expand its public reach. It has achieved this in a variety of ways over the last several years.

The experimental development of a neighborhood museum in Anacostia has shown that museum operations may be carried out in the crucible of the inner city, that children may learn with delight and advantage, and that the residents of the area will treat with respect what they regard as their own center for learning and recreation. The story of the Anacostia Neighborhood Museum and its usefulness stands as one of the outstanding achievements of the Institution in recent years.

The activities of some of the other public service units have been no less important. There is the popular Folklife Festival on the Mall, sponsored annually by the Division of Performing Arts. The services of the Office of Public Affairs, which range through activities in the fields of information and public education, such as radio, television, documentary films, news releases, and guide pamphlets are especially valuable. The world-wide character of the programs of the Office of International Activities and the International Exchange Service serve to bring this nation closer to the ideal of a world community through research and the dissemination of knowledge.

The increase requested for the Public Service Activities amounts to \$118,000, or one percent of the total Institutional requested increase.

ANACOSTIA NEIGHBORHOOD MUSEUM

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions . .	<u>11</u>	<u>4</u>	<u>15</u>
11 Personnel Compensation	\$ 106,000	\$ 36,000	\$ 142,000
12 Personnel Benefits	8,000	3,000	11,000
21 Travel & Transp. of Persons	3,000	1,000	4,000
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction			
25 Other Services	4,000	0	4,000
26 Supplies & Materials	4,000	6,000	10,000
31 Equipment	0	6,000	6,000
41 Grants			
TOTAL	<u>\$ 125,000</u>	<u>\$ 52,000</u>	<u>\$ 177,000</u>

Analysis of Total

Pay Increase	\$ 6,000	\$ 7,000	\$ 13,000
Program	\$119,000	\$45,000	\$164,000

Specification of Increase (Program):Classroom and Workshop Activity and General Operations (4 positions, \$45,000)

In the three years of its operations the Anacostia Neighborhood Museum has entertained and instructed over 150,000 visitors and has offered a wide array of exhibits, classes, and youth programs. Although private gifts, donations, and grants for special programs and projects are coming to the Museum, such support for regular, ongoing operations and administration has virtually dried-up. Yet community demands for museum-related education services are increasing steadily. Although part-time and volunteer help from the community is used, two full-time instructors (\$13,000) are required to put class and workshop activities on a more regular basis. An assistant to the director (\$14,000) is needed to work with the community and other groups interested in setting up similar museums. A custodian (\$5,000) also is needed to help maintain the public and work areas of the Museum. Funds in the amount of \$13,000 are required for custodial, exhibit, and workshop supplies and equipment and for program related travel.

ANACOSTIA NEIGHBORHOOD MUSEUM

1970 Actual	\$124,000
1971 Estimate.....	\$125,000
1972 Estimate.....	\$177,000

The Anacostia Neighborhood Museum was established to reach out to new audiences who are unaware of museum resources, physically too far from them, or as inhabitants of low-income population density centers do not see the interest or relevance of museums. Starting in 1966, the Smithsonian sought out community reaction to the concept of a permanent neighborhood museum in the inner city. Reaction was most favorable and the desire for community involvement appeared strongest in Anacostia. The Museum was founded entirely by private donations and was opened in September 1967. Exhibits concentrated on visitor involvement and classes in sculpture, leathercraft, clay modeling, drawing, and painting have been held. In subsequent months, the Museum, in close collaboration with its Neighborhood Advisory Council, began to present exhibits which the community requested, primarily in the field of Negro history. In each case, the exhibit served as a backdrop for school programs, lectures, and concerts. Three years later, the Museum has entertained and instructed over 150,000 visitors and offers a widening array of classes and youth programs. Anacostia has linked its activities directly to the needs of the community and has assured a fresh, nontraditional approach to the role of the museum.

In exhibits and related education programs, Anacostia is now concentrating on urban problems. A recent substantial combined grant from the Carnegie Corporation, the Cafritz Foundation; and the Department of Housing and Urban Development will permit the Museum to identify Anacostia's most pressing social and economic problems through community participation and translate these problems into exhibits with related educational activities. This effort should have a wide impact since to a large degree the problems of Anacostia are shared widely by other urban centers across the nation.

A program increase of \$45,000 is requested for classroom and workshop activity, overall program administration, and general costs of operation. An additional funding of \$7,000 is requested for necessary pay for current staff.

Need for Increase--Although private gifts, donations, and grants for special programs and projects continue to be made available to the Museum, no such funds are now being provided for regular on-going programs and administration. To illustrate this point, over \$100,000 in general purpose funds were received during 1967, 1968, and 1969; virtually none the past year. The increase provided in the fiscal year 1971 appropriation (\$35,000 of \$75,000 requested) met part of these costs. For instance, rental of the Museum building can now be paid with federal funds. This increase, however, could not fund the additional staff required for basic activities.

Community demands on the Museum for classes, workshops, and other museum-related education services have increased steadily since the Museum opened. Part-time and volunteer help from the community has been used, but two full-time instructors (\$13,000) are required to put the class and workshop activities on a more regular basis. An assistant to the director (\$14,000) is needed to work with the community and other groups interested in setting up similar museums. A custodian (\$5,000) also is needed to help maintain the public and work areas of the Museum. Funds in the amount of \$13,000 are required for custodial, exhibit, and workshop supplies and equipment and for program related travel.

OFFICE OF INTERNATIONAL ACTIVITIES

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>8</u>	<u>1</u>	<u>9</u>
11 Personnel Compensation.....	\$ 112,000	\$ 12,000	\$ 124,000
12 Personnel Benefits.....	8,000	2,000	10,000
21 Travel & Transp. of Persons	4,000	9,000	13,000
22 Transportation of Things			
23 Rent, Comm. & Utilities	0	1,000	1,000
24 Printing & Reproduction.....			
25 Other Services			
26 Supplies & Materials	1,000	1,000	2,000
31 Equipment			
41 Grants			
TOTAL	<u>\$ 125,000</u>	<u>\$ 25,000</u>	<u>\$ 150,000</u>

Analysis of Total

Pay Increase	\$ 6,000	\$ 9,000	\$ 15,000
Program	\$119,000	\$16,000	\$135,000

Specification of Increase (Program):Foreign Currency Program Administration (1 position, \$16,000)

A major role of the Office of International Activities is to administer the Foreign Currency Program which awards grants for research abroad to American institutions of higher learning. The program is now supporting 97 grants in biology, archeology, earth and space sciences, and museum programs in ten excess currency countries. Additional clerical help is imperative to help administer a growing number of grants. One clerk-typist is requested (\$5,000). An additional \$11,000 are requested, primarily for travel and related expenses of the Foreign Currency Program Advisory Councils that meet to select proposals for funding and review performance of work underway.

OFFICE OF INTERNATIONAL ACTIVITIES

1970 Actual	\$118,000
1971 Estimate	\$125,000
1972 Estimate	\$150,000

The Office of International Activities was established in 1965 to initiate, coordinate, and oversee Smithsonian interests abroad. In this capacity, it assists the Institution's scientific staff planning research overseas, briefs American diplomats on Smithsonian activities abroad, and maintains close contact with the foreign diplomatic missions in Washington. In addition, it briefs pertinent foreign visitors and administers training programs for foreign museum technicians at the Institution. The Office also serves as the Executive Agent of the Iran-U.S. Agreement signed in 1968 to foster scientific cooperation between the two countries.

Recently the Office has become increasingly involved in the worldwide environmental and conservation interests of the Institution. It has been concerned with conservation efforts on Dominica, Aldabra, and in Honduras as well as at the Smithsonian's own Chesapeake Bay Center. It was instrumental in bringing about a symposium on the endangered species of Hawaii. An environmental symposium to be held in India is now in the planning stage.

A major role of the Office is to administer the Smithsonian Foreign Currency Program which awards grants for research abroad to American institutions of higher learning as well as to Smithsonian scientists. Since 1965, over \$10.5 million worth of PL-480 "excess" currencies have been obligated to scientists working in the four basic fields of Smithsonian scientific competence: systematic and environmental biology, archaeology and related disciplines, earth and space sciences, and museum programs. The program is now supporting 97 projects operating in Ceylon, Egypt, Guinea, India, Israel, Morocco, Pakistan, Poland, Tunisia, and Yugoslavia. A symposium on Smithsonian projects in Ceylon was held there, and a follow-up meeting is planned for the present year.

An increase of \$16,000 is requested primarily for Foreign Currency Program administration. \$9,000 are required for necessary pay increases.

Need for Increase--In fiscal year 1972 the Office of International Activities will face a critical shortage of clerical personnel. With the continual growth of the responsibilities of the OIA and an ever increasing number of grants handled by the Foreign Currency Program, additional clerical help is imperative. Since the Office's establishment in 1965, its administrative staff has grown, but clerical positions have not increased. At present, six persons are employed in an administrative capacity while there are only two clerical positions. An additional clerk-typist is requested (\$5,000).

An additional \$11,000 are requested for travel and office maintenance expenses. Of this amount, \$7,000 are required for transportation and per diem expenses for members of the Foreign Currency Program Advisory Councils. Composed of prominent American scientists, these councils meet twice yearly to review proposals submitted to the Foreign Currency Program for possible funding. The remaining \$4,000 are needed for domestic travel and overseas travel-related expenses of the OIA staff and for office supplies and equipment.

INTERNATIONAL EXCHANGE SERVICE

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions..	<u>9</u>	<u>0</u>	<u>9</u>
11 Personnel Compensation.....	\$ 73,000	\$ 3,000	\$ 76,000
12 Personnel Benefits.....	5,000	0	5,000
21 Travel & Transp. of Persons			
22 Transportation of Things	38,000	13,000	51,000
23 Rent, Comm. & Utilities			
24 Printing & Reproduction.....			
25 Other Services			
26 Supplies & Materials	4,000	2,000	6,000
31 Equipment			
41 Grants			
TOTAL.....	<u>\$120,000</u>	<u>\$18,000</u>	<u>\$138,000</u>

Analysis of Total

Pay Increase	\$ 2,000	\$ 3,000	\$ 5,000
Program	\$118,000	\$15,000	\$133,000

Specification of Increase (Program):Restoration of Exchange Services (\$15,000)

Official publications, such as the Federal Register and the Congressional Record, continue to be exchanged as required by law. A static appropriation and higher costs, however, have forced the Exchange Service to reduce substantially the exchange of library, university, and college publications. Additional funds in the amount of \$15,000 for shipping and supplies are requested to help restore the previous level of these important exchanges.

INTERNATIONAL EXCHANGE SERVICE

1970 Actual.....	\$118,000
1971 Estimate.....	\$120,000
1972 Estimate.....	\$138,000

Through the International Exchange Service, public and private institutions in the United States transmit their publications to other countries and receive publications from foreign institutions. Begun in 1849 as a exchange service between the Smithsonian and learned societies in foreign countries, the program was so successful that five years later it was expanded to other American libraries, scientific societies, and educational institutions. As a result of the Brussels Convention of 1886 and some 50 bilateral treaties, the Smithsonian was designated as the exchange bureau for official United States publications. Today many libraries in the United States are dependent upon the exchange program for their foreign publications.

An appropriation increase of \$15,000 is requested to help restore the level of exchange services. Funding of \$3,000 for necessary pay also is sought.

Need for Increase--In fiscal year 1967 over 1.5 million packages of publications were received from organizations in the United States for exchange with foreign libraries. By fiscal year 1971, as a result of a static appropriation, higher salary costs, and inflation in the costs of shipping and packaging supplies and equipment, the volume that could be shipped had dropped by about one-third. At present, the exchange of official publications (Federal Register, Congressional Record, etc.) is current as required by law. The exchange programs of colleges, universities, scientific societies, libraries, and medical and dental schools however, have had to be severely limited. Much of these materials are of great benefit to foreign libraries especially in the developing countries. Funds are requested for shipping (\$13,000) and packaging supplies (\$2,000).

DIVISION OF PERFORMING ARTS

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>7</u>	<u>0</u>	<u>7</u>
11 Personnel Compensation.....	\$ 110,000	\$ 6,000	\$ 116,000
12 Personnel Benefits.....	9,000	0	9,000
21 Travel & Transp. of Persons	21,000	0	21,000
22 Transportation of Things	6,000	0	6,000
23 Rent, Comm. & Utilities	7,000	0	7,000
24 Printing & Reproduction.....	4,000	0	4,000
25 Other Services	12,000	0	12,000
26 Supplies & Materials	14,000	0	14,000
31 Equipment	13,000	0	13,000
41 Grants			
TOTAL.....	<u>\$ 196,000</u>	<u>\$ 6,000</u>	<u>\$ 202,000</u>

Analysis of Total

Pay Increase	\$ 8,000	\$6,000	\$ 14,000
Program	\$188,000	0	\$188,000

Specification of Increase (Program):Programs in American Cultural History

The Division of Performing Arts is responsible for programs dealing with America's cultural heritage particularly as it shows itself in theater, music, dance, and craft skills. Notable among its programs are the annual Festival of American Folklife and its participation in the annual American College Theater Festival. A program fund increase is not being sought for fiscal year 1972.

DIVISION OF PERFORMING ARTS

1970 Actual	\$226,000
1971 Estimate	\$196,000
1972 Estimate	\$202,000

The Division of Performing Arts is responsible for programs dealing with our national aesthetic expressions, particularly as they evidence themselves in oral, music, or dance forms. By staging such events as the annual Festival of American Folklife, which in 1970 drew more than 750,000 persons to the Mall over a five-day period, this Division undertakes to extend and further enliven the Smithsonian's educational services to the public.

At the Festival, more than 350 Indians, cheesemakers, barrelmakers, jellymakers, distillers, wood carvers, basketmakers, jazz musicians, folk singers, gospel groups, and musicians from many regions of the United States demonstrated the survival of American folklife in performances which reminded visitors of their still-flourishing cultural heritage.

Programs in jazz and modern dance reflect contributions to world culture which are widely recognized as particularly American in origin and style. Programs in contemporary and period music, theatre, and dance provide understanding of the creative view of the present and past.

The Division offers a variety of Touring Performances such as theatre, musical concerts, puppet theatre, the American Folklife Company, and lectures which are available to other museums, universities, and cultural centers throughout the United States. It also sponsors, with the American Educational Theater Association and the John F. Kennedy Center for the Performing Arts, the annual American College Theater Festival.

No program fund increase is sought for fiscal year 1972. An additional amount of \$6,000 is requested for necessary pay for current staff.

OFFICE OF PUBLIC AFFAIRS

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>12</u>	<u>0</u>	<u>12</u>
11 Personnel Compensation.....	\$ 206,000	\$ 16,000	\$ 222,000
12 Personnel Benefits.....	17,000	1,000	18,000
21 Travel & Transp. of Persons			
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction.....	10,000	0	10,000
25 Other Services	2,000	0	2,000
26 Supplies & Materials	6,000	0	6,000
31 Equipment			
41 Grants			
TOTAL.....	<u>\$ 241,000</u>	<u>\$ 17,000</u>	<u>\$ 258,000</u>

Analysis of Total

Pay Increase	\$ 12,000	\$ 17,000	\$ 29,000
Program	\$ 229,000	0	\$ 229,000

Specification of Increase (Program):Orientation, Information, and Public Education

This Office provides visitor and public orientation, information, and education services. No program fund increase is requested for fiscal year 1972.

OFFICE OF PUBLIC AFFAIRS

1970 Actual	\$277,000
1971 Estimate	\$241,000
1972 Estimate	\$258,000

This Office is responsible for serving visitors to the Smithsonian and the public at large through a range of activities in the fields of orientation, information, and public education--radio, television, documentary films, news releases, guide pamphlets, tours, automatic telephone information services, publications, and other programs. Included in its presentations are the Free Film Theater, the Torch newspaper, the Smithsonian Calendar of Events, and "Radio Smithsonian" now being heard over 60 stations.

No program fund increase is sought for fiscal year 1972. An amount of \$17,000 for necessary pay for the current staff is requested.

SMITHSONIAN INSTITUTION SPECIAL PROGRAMS

This group of activities is considered to be of particular importance in implementing desired growth in the Institution's activities over the next several years. Some supplement program activities of the museums and galleries. For instance, opportunities are provided for outstanding pre- and post-doctoral investigators from across the nation to be selected for work under the supervision of the Institution's professional staff. Education services are provided by means of popular museum tours for school children and other education services. Other special programs provide the basis on which the Institution affects dramatic changes in its exhibits and research efforts. The exhibits program request is geared to produce one major exhibit on the World of Living Things in the Natural History Museum, while the Bicentennial of the American Revolution request will continue the Institution's efforts to celebrate and portray the first two-hundred years of American history and what they may mean for the future. The environmental science program request speaks to the second year of a coordinated Institutional effort to shed light on ecological problems in the nation, and the research awards request will enhance the Institution's ability to fund especially meritorious work of its professionals. The National Museum Act request is directed at strengthening the nation's museums by means of training and improved conservation, cataloging, and exhibits techniques. The increase being requested for these programs is \$1,926,000 and constitutes 22 percent of the total Institutional requested increase.

BICENTENNIAL OF THE AMERICAN REVOLUTION

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>2</u>	<u>0</u>	<u>2</u>
11 Personnel Compensation.....	\$ 21,000	\$ 0	\$ 21,000
12 Personnel Benefits.....	2,000	0	2,000
21 Travel & Transp. of Persons			
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction....			
25 Other Services	377,000	0	377,000
26 Supplies & Materials			
31 Equipment			
41 Grants			
TOTAL.....	<u>\$ 400,000</u>	<u>\$ 0</u>	<u>\$ 400,000</u>

Analysis of Total

Pay Increase	0	0	0
Program	\$400,000	0	\$400,000

Specification of Increase (Program):Smithsonian Bicentennial Activities

The Bicentennial of the American Revolution offers the Smithsonian Institution a unique opportunity and an urgent duty. We must use our vast resources, and enlist the resources of others, to help rediscover and illuminate our national achievements. The theme of the Smithsonian's Bicentennial celebration is the American Experience; its purpose will be, in President Nixon's words, "...a new understanding of our heritage."

The Smithsonian program of Bicentennial activities is in addition to, and beyond, the Institution's normal level of day-to-day operation. It is designed to be complete in itself, to be terminal in nature, and to avoid permanent commitment of personnel and other additions to the appropriations base.

During the next several years, the greater part of the Institution's Bicentennial efforts will necessarily be devoted to the research, collection, and planning which are called for to arrive at the Institution-wide, coordinated events surrounding 1976. Preliminary work will result in some visible results such as individual exhibitions, seminars, and publications. But in general, the nature of the entire undertaking is such that the budget projection shows a steady progress from "behind the scenes" activities toward translation into public exhibitions, performances, and a series of major publications, as we approach 1976.

No program increase is requested for fiscal year 1972.

AMERICAN REVOLUTION BICENTENNIAL PROGRAM

1970 Actual	\$	0
1971 Estimate.....	\$400,000	
1972 Estimate.....	\$400,000	

The Bicentennial of the American Revolution offers the Smithsonian Institution a unique opportunity and an urgent duty. We must use our vast resources, and enlist the resources of others, to help rediscover and illuminate our national achievements. The theme of the Smithsonian's Bicentennial celebration is the American Experience; its purpose will be, in President Nixon's words, "...a new understanding of our heritage."

For this effort, the Smithsonian Institution is providentially well prepared. It is a remarkably comprehensive group of enterprises surveying every aspect of man's life and work--his social, political, and military institutions; his fine arts, his applied arts, his performing arts; his use of natural resources; and his adventures of exploration on this planet and into outer space. The Smithsonian Institution has a long and rich tradition of free interchange of ideas with the world of learning. It has been a center for the study of resources, natural and human, of the whole continent. The Smithsonian, as the repository for myriad objects sacred to our history and illustrative of the American Experience since the beginning, is preeminent among the museums of the world and second to none in the number of its visitors.

The Smithsonian program of Bicentennial activities is in addition to, and beyond, the Institution's normal level of day-to-day operation. It is designed to be complete in itself, to be terminal in nature, and to avoid permanent commitment of personnel and other additions to the appropriations base. The request for fiscal year 1972, \$400,000, and projected future funding is shown in Table I.

During the next several years, the greater part of the Institution's Bicentennial efforts will necessarily be devoted to the research, collecting, and planning which are called for to arrive at the Institution-wide, coordinated events surrounding 1976. Preliminary work will result in some visible results such as individual exhibitions, seminars, and publications. But in general, the nature of the entire undertaking is such that the budget projection shows a steady progress from "behind the scenes" activities toward translation into public exhibitions, performances, and a series of major publications, as we approach 1976.

The Smithsonian's Bicentennial activities are designed to be interrelated and mutually reinforcing, but for budgetary purposes they can be viewed under three headings: Exhibitions and Performances; Research and Publications; and National Programs.

Exhibitions and Performances

In the Nation's Capital, the Smithsonian offers a uniquely effective and appropriate site for dramatizing and interpreting the American Experience. Now some 13 million people each year visit the Smithsonian museums in Washington. By 1976 this figure is likely to reach 20 million, and interest in the Bicentennial may well bring the number to 30 million. The Smithsonian will provide these visitors with an appropriate and dramatic exposition. In January 1976 each of the Smithsonian's ten museums plans to open a major exhibiton commemorating the Bicentennial, the first occasion when so many of the Institution's resources will be devoted to a single theme. At the same time, a guide will be published showing the coherence of the Smithsonian's many activities in exploring and illustrating the American Experience.

The visitor to the Mall will have an unparalleled opportunity to participate in a sequence of varied and informative experiences. He will explore American history and see the expression of the American spirit through two centuries and across a wide range of subject matter.

At the National Museum of Natural History, he will see the look and sense the feeling of the land and its original inhabitants at the time the first Europeans arrived, and he will see what happened to these people and the effects wrought upon the land over the centuries.

At the Arts and Industries Building, he will see the way Americans saw themselves, their past and future, at the time of the 1876 Philadelphia Centennial. In this building, constructed originally to house materials that had been assembled and displayed at the Philadelphia Centennial, the same objects will be used to recapture the optimistic mood in which Americans celebrated this midpoint in our history.

In the National Air and Space Museum, the visitor will see an exhibition of what is perhaps America's greatest technological achievement, the conquest of outer space, and of the nation's future in the Space Age.

Special exhibitions at the National Museum of History and Technology will present the cultural, industrial, and political development of the United States. Examples of these are the Corridors of American Experience, a series of "time corridors" designed to enable the visitor to experience daily living at specific times in America's past. A "time machine", to be developed in the current year and tested on the public in fiscal year 1972, will transport the visitor by novel means of surveying the intervening experience.

The Price of Independence will present the risks and the opportunities of independence for the American colonists: the risks of sea trade, of potential civil war, the fear of defeat and the human and fiscal costs of war, supplemented by the problems which would result from the loss of trade with England. The second part will depict the new opportunities--political, economic, intellectual--to be found in independence. A newly designed computerized game will allow the museum visitor to select one of several roles (such as that of a Boston merchant, a Philadelphia laborer, or a Southern planter) and test his decisions against the actual facts of history in the period 1770-1820. In this way, he can relive the risks and opportunities of the Revolutionary Era. (A significant number of innovative display techniques, using new technology, will be developed. These technical advances will be made available to museums and display designers throughout the country.)

Other major activities will include an unprecedentedly comprehensive exhibit of portraits and associated objects of Americans of the Revolutionary Era, and a year-long festival of American traditional and ethnic performing arts and handicrafts (the "Grassroots American Culture Program").

Research and Publications

We believe that the commemorative activities associated with the Bicentennial should improve our understanding of ourselves and make a lasting contribution to human knowledge. When the performances have ended and the exhibitions have closed, something of use to Americans during the third century of our national life should remain.

As an important part of the Bicentennial program of the Smithsonian, we propose to undertake a number of inventories of national cultural resources. These will range from an Inventory of American Paintings, to a Survey of Ethnic and Regional Cultural Forms. During fiscal year 1971, the scope and techniques

of these surveys will be specified and refined, with a particular view to coordinating the activities of the scholars, students, conservationists, and photographers who will participate in them. Every effort will be made to enlist the support and cooperation of regional and local groups in this enterprise. We expect that the actual compiling of the inventories will begin in fiscal year 1972.

The first result of these inventories will be apparent in our own Bicentennial exhibits and performances, as for the first time we will be able to draw upon the entire range of America's cultural resources. The same will hold true at the regional and local level, as our efforts make people more aware of the richness and importance of their own traditions.

Equally important, however, is our plan to preserve this information in permanent form for scholars and for the public. We intend to sponsor, or to arrange for the publication of, scholarly catalogues, documentary histories, recordings and films; other data not appropriate for such publications will be retained in archival form or in computer banks for the use of future generations. We believe that these Smithsonian Bicentennial Inventories will reveal as never before the full scope of our cultural achievements during the first two centuries of our history.

During the years between now and 1976, we will also be engaged in research of a narrower kind, focused directly upon the topics of our special Bicentennial exhibits. Projects of this sort will include research on all the portraits of George Washington, on the life of a New England seaport in the mid-18th century, on the life of a midwestern town in the mid-19th century, and on the contributions of various ethnic groups to American civilization. Here, too, we intend that the fruits of this research shall be made available to the public in permanent form, drawing upon our exhibits for illustrative material.

National Programs

We share the conviction of President Nixon and the American Revolution Bicentennial Commission that "the commemoration be national in scope, seeking to involve every state, city and community." For our part, we are determined that each of our Bicentennial activities, in addition to drawing upon and reflecting the entire nation, shall also bring benefits to as many areas and people as possible.

Concretely, this means that in the conception and design of all our Bicentennial exhibits and performances, we will bear in mind the need to create counterparts that can travel throughout the country during the Bicentennial Era. Drawing upon the experience and capabilities of our Traveling Exhibition Service, and upon the talents and imagination of our Office of Exhibits, we intend to offer to American museums, schools, historical societies, and other organizations a rich selection of exhibitions and performances related to our general theme, The American Experience.

Table I
Bicentennial Activities and Budget Forecast
(in thousands of dollars)

	1971	1972	1973	1974	1975	1976	1977	1978
Exhibitions and performances..	\$130	\$130	\$350	\$ 425	\$ 525	\$ 825	\$ 400	\$ 50
Research and publications....	200	200	250	350	400	200	75	50
National programs.....	50	50	100	200	300	400	700	100
Administration ..	20	20	25	25	25	25	25	25
Total.....	\$400	\$400	\$725	\$1,000	\$1,250	\$1,450	\$1,200	\$225

ENVIRONMENTAL SCIENCE PROGRAM

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>3</u>	<u>5</u>	<u>8</u>
11 Personnel Compensation.....	\$ 27,000	\$ 69,000	\$ 96,000
12 Personnel Benefits.....	2,000	6,000	8,000
21 Travel & Transp. of Persons	10,000	30,000	40,000
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction.....			
25 Other Services	61,000	70,000	131,000
26 Supplies & Materials	10,000	20,000	30,000
31 Equipment	40,000	30,000	70,000
41 Grants			
TOTAL.....	<u>\$ 150,000</u>	<u>\$ 225,000</u>	<u>\$ 375,000</u>

Analysis of Total

Pay Increase			
Program	\$150,000	\$225,000	\$375,000

Specification of Increase (Program):Continued Development of Institutional Program (5 positions, \$225,000)

In fiscal year 1971, Congress authorized \$150,000 to enable the Institution to muster its varied resources and expertise in basic ecological research toward the objective of developing biological and physical data which will permit the Nation to evaluate and ultimately predict the consequences of changes to the environment. This approach is essential to making the best decisions possible for rational and productive management of the environment. In the past many ecological changes have been attributed to man's influence because of ignorance of fluctuations in natural cycles; an ignorance which has often led to counterproductive measures in dealing with environmental problems. The fiscal year 1971 amount is being directed toward three activities: (1) the organization of an interdisciplinary program and establishment of a continuing mechanism for its operation; (2) the selection of sites of highest priority for study; and (3) the implementation of interrelated studies at these sites.

In fiscal year 1972 the Smithsonian Institution is requesting an additional \$225,000 to carry out its environmental program. This consists of a long term study of a marine shallow-water system and that of a tropical forest. A study of these two systems is given a high priority by the Smithsonian and is consistent with the recommendations of the International Biological Program. In so doing, the Institution is following the intent of Congress as expressed in Public Law 91-438. A total of five scientific specialists will be appointed on a short term basis to provide specialized expertise as required (\$75,000) and provide related support funding of \$150,000.

ENVIRONMENTAL SCIENCES PROGRAM

1970 Actual	0
1971 Estimate	\$150,000
1972 Estimate	\$375,000

The Smithsonian Institution has unique capabilities including experienced personnel, the largest collections of plants and animals in the world, with detailed distribution and abundance data required, as a basis for any effective global environmental monitoring system. The Smithsonian has the capability to measure natural and man-induced variation in the characteristics of solar radiation reaching the earth and the causes of such variations. The Institution is studying, as a function of time, various biological correlates. These studies are facilitated because it has permanent and protected field-research sites in both temperate and tropical zones. In addition the Smithsonian enjoys particularly favorable relations with its scientific colleagues and institutions in virtually every country of the world.

Environmental Science Program activity during fiscal year 1971 is limited to such priority items as monitoring rates of biological and physical change and using plants and animals as benchmarks and bioindicators in the establishment of environmental standards. The major objectives of the fiscal year 1972 program, for which a funding of \$375,000 is requested, are to study selected tropical and temperate areas to understand all the factors contributing to the fluctuations in populations. This will be done in the following manner:

- a. by monitoring and evaluating the physical and chemical environments of selected study sites.
- b. by studying the biology and quantitative distribution of principal organisms at these sites.
- c. by studying the inter-relationships of the environment with these organisms and man.

Need for Increase--With its commitments to; identification and assessment of the components of man's natural surroundings and of his cultural development; monitoring of change for predictive purposes; and education at all levels of public interest, the Institution will concentrate on two subprograms during fiscal year 1972.

- A long term comparative study of shallow water marine environments at those sites selected for continuing study \$155,000
- Establishment of benchmarks in terrestrial environments at the selected sites. \$70,000

This plan of work is given high priority by the Smithsonian and is consistent with the recommendations of the International Biological Program and with Public Law 91-438.

1. Shallow Water Marine Environments (3 positions, \$155,000)

Drastic, ecological changes are occurring in many tropical and temperate shallow water areas throughout the world. Some scientists attribute these changes to man's interference with the natural environment but others caution that they may be wholly natural. Should the changes be natural, efforts to reverse or halt their effects may do more harm to the world's biological systems than permitting them to proceed without alteration. An evaluation of the origin of these changes cannot be made without a thorough understanding of the fluctuations and ecology of the organisms involved.

Although many scientists throughout the world are studying the animals and plants in the near-shore, marine environment, these studies are fragmented and are made independently of each other. A coordinated study in selected areas susceptible to detailed examination is essential for an understanding of the immense biological complexity and structural variety involved. The information and methodology developed from such studies will have application to more extensive environments, leading eventually to an understanding of the problems as broad as whole continental regions. All researchers will apply their particular expertise to the primary site(s), but some investigators will need to make complementary studies elsewhere to validate their primary-site data.

The development of this baseline information and its correlation with data already available in the National Collections, accumulated over many years, will enable the scientific community to identify and design solutions for the environmental problems that grow increasingly critical.

The professional staff of the several Smithsonian science bureaus (National Museum of Natural History, Smithsonian Tropical Research Institute, Radiation Biology Laboratory, Chesapeake Bay Center for Environmental Studies, National Zoological Park, and Smithsonian Astrophysical Observatory) will perform the bulk of these studies, in collaboration with highly qualified scientists drawn from other institutions on short-term appointments to provide specialized expertise as required. The populations of marine species and their ecology will be determined and monitored for long periods.

For this portion of the program, an additional \$155,000 is requested to fill on a term basis, three positions (\$39,000) and to provide necessary supplies, equipment, and materials to undertake the studies (\$116,000).

2. Terrestrial Environments (2 positions, \$70,000)

The last large land area available for occupation and development by man lies in the tropical zones of the world. In the New World tropics, destruction of the land is rampant and ecological data that would permit intelligent management is non-existent. It is important that these problems be attacked now, before rapidly expanding populations, industrialization, and urbanization remove all options presently available. Therefore, the first phase in this necessarily long term research project will be directed to a study of the New World tropics, with comparative studies being made in temperate zones and in tropical areas of the Old World to validate the conclusions drawn. This approach will greatly expand the value and increase the usefulness of the environmental data acquired in each of the phases of the project.

Historically, there has been a long-standing scientific interest in the Smithsonian Institution concerning tropical plants and animals and their interrelationships. The millions of documented specimens in the National Collections, the resources of the Smithsonian Tropical Research Institute, and the associated scientific expertise that has been developed in the Smithsonian Institution constitute a unique national resource. It will be used fully in this integrated environmental subprogram to obtain information essential to the development of plans for the most effective long-term utilization of the land.

Studies of variations in physical factors such as solar radiation, rainfall, temperature, and nutrients will be correlated with fluctuation in biological systems such as primary productivity (plant growth), secondary productivity (amount and rates of consumption of plants by animals), and nutrient cycling (decomposition of organic matter and soil production).

Studies of soil organisms, of vertebrate animals, insects, and of plant life will be conducted in coordination with monitoring of natural light quantitatively and qualitatively, of rainfall, temperature, animal behavior, and seasonal fluctuations in populations of both plants and animals. What will be sought is a number of reliable biological indicators that will provide a maximum amount of information about the structure and function of the terrestrial environments.

For this portion of the program an additional \$70,000 is requested to fill on a term basis, two positions (\$36,000) and to provide necessary supplies, equipment and materials to undertake the investigations (\$34,000).

MAJOR EXHIBITIONS PROGRAM

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions . .	<u>0</u>	<u>0</u>	<u>0</u>
11 Personnel Compensation \$		\$	\$
12 Personnel Benefits			
21 Travel & Transp. of Persons 0		5,000	5,000
22 Transportation of Things . . .			
23 Rent, Comm. & Utilities . . .			
24 Printing & Reproduction . . . 0		30,000	30,000
25 Other Services 0		300,000	300,000
26 Supplies & Materials 0		60,000	60,000
31 Equipment 0		130,000	130,000
41 Grants			
TOTAL \$ 0		\$ 525,000	\$ 525,000

Analysis of Total

Pay Increase	0	0	0
Program	0	\$525,000	\$525,000

Specification of Increase (Program):World of Living Things (\$525,000)

The Smithsonian has designed a major exhibition on the interrelated laws of nature. The purpose of this exhibition, called the World of Living Things, is to educate and stimulate the public on the balance of the natural environment, and action that must be taken to insure a livable environment on earth. Space for this exhibition now exists in the Natural History Building which will have some 4 million visitors a year. Plans for this exhibition have been completed. The Institution however, does not have the funds for its production and installation. An amount of \$775,000 will be required, of which \$525,000 are requested in fiscal year 1972. The exhibition will be completed in 18 months after the initial appropriation of funds.

MAJOR EXHIBITIONS PROGRAM
WORLD OF LIVING THINGS

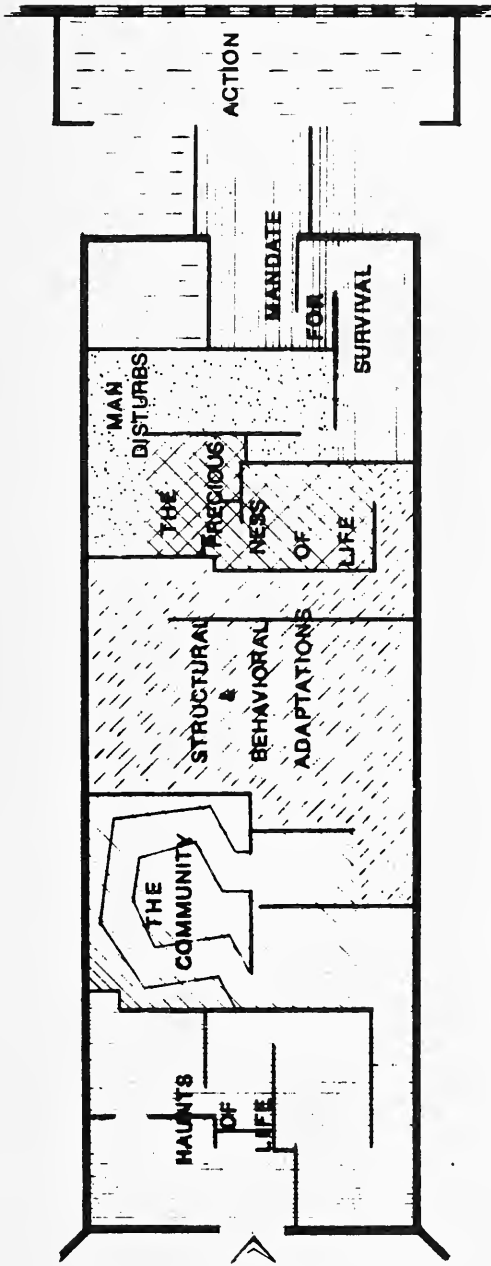
1970 Actual.....\$0
 1971 Estimate.....\$0
 1972 Estimate.....\$525,000

A major exhibition on the interrelated "laws of nature" is designed which will include both an introduction to ecology and the exposition of worldwide environmental balances and imbalances. Issues and options will be presented to the visitor with the opportunity for him to react to them and to see and consider the consequences of his choices. Plans and sketches of this exhibition are shown on following pages.

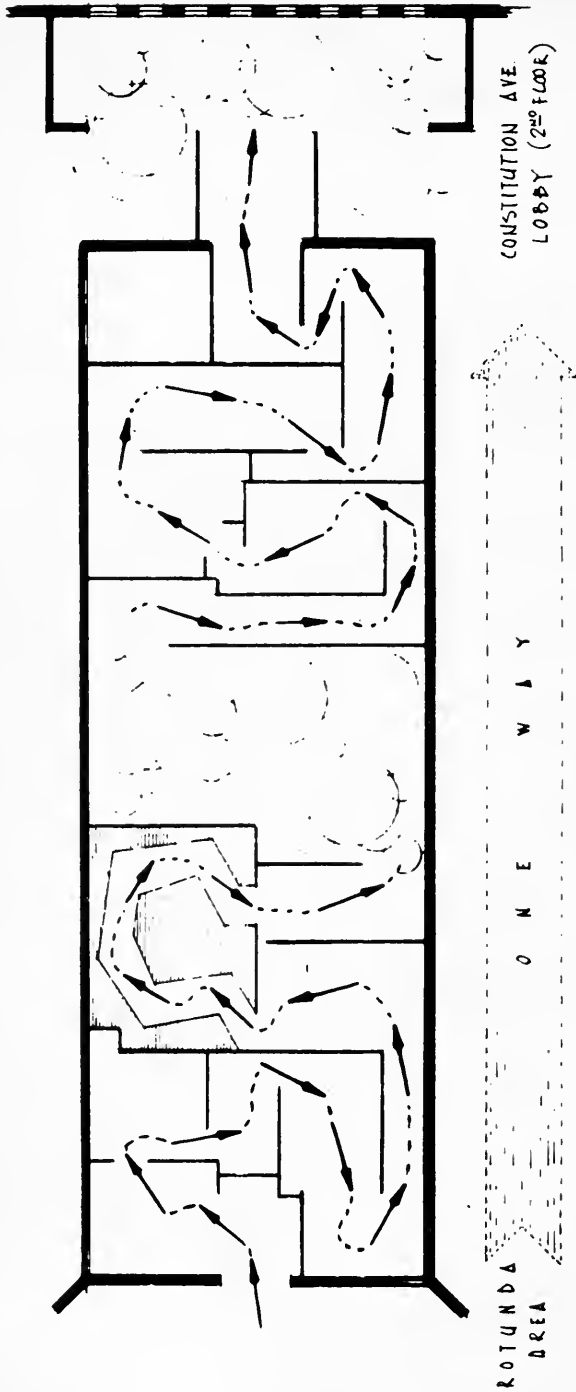
Three years of development have been devoted to the planning of this exhibition. Science writer Peter Farb, working with Smithsonian scientists and exhibition and communication specialists, has produced the specifications for a significant educational exhibition. The objective is to stimulate the hundreds of thousands of visitors to the Museum of Natural History to participate in conservation programs and to inform them how to express and act upon their concern. About 4,000,000 visitors a year will view this exhibition. It will continue with changes for years of current usefulness.

The exhibit will combine modern methods of communication through exhibits and the authority of the Museum's scholarly scientists. It will be designed for experimentation, testing, and development of its effectiveness as its use is observed. It will have the flexibility to be up-dated as environmental sciences evolve. It will have both present and future values in the critical effort to insure a livable environment on earth. It will put the most significant of the Museum's vast collection resources in the service of ideas explaining a vital problem of our times.

Space for this exhibition now is available in the Natural History Building in a central location immediately off the Rotunda and extending to the Constitution Avenue side of the building. For the production of the exhibition \$525,000 will be required in fiscal year 1972 and \$250,000 in fiscal year 1973. The exhibition will be completed in 18 months after the initial appropriation of funds. The \$525,000 required in fiscal year 1972 will be used as follows: travel (\$5,000), printing and reproduction including descriptive labels and related educational materials associated with the exhibition (\$30,000), other services (\$300,000), supplies (\$60,000), and equipment (\$130,000).



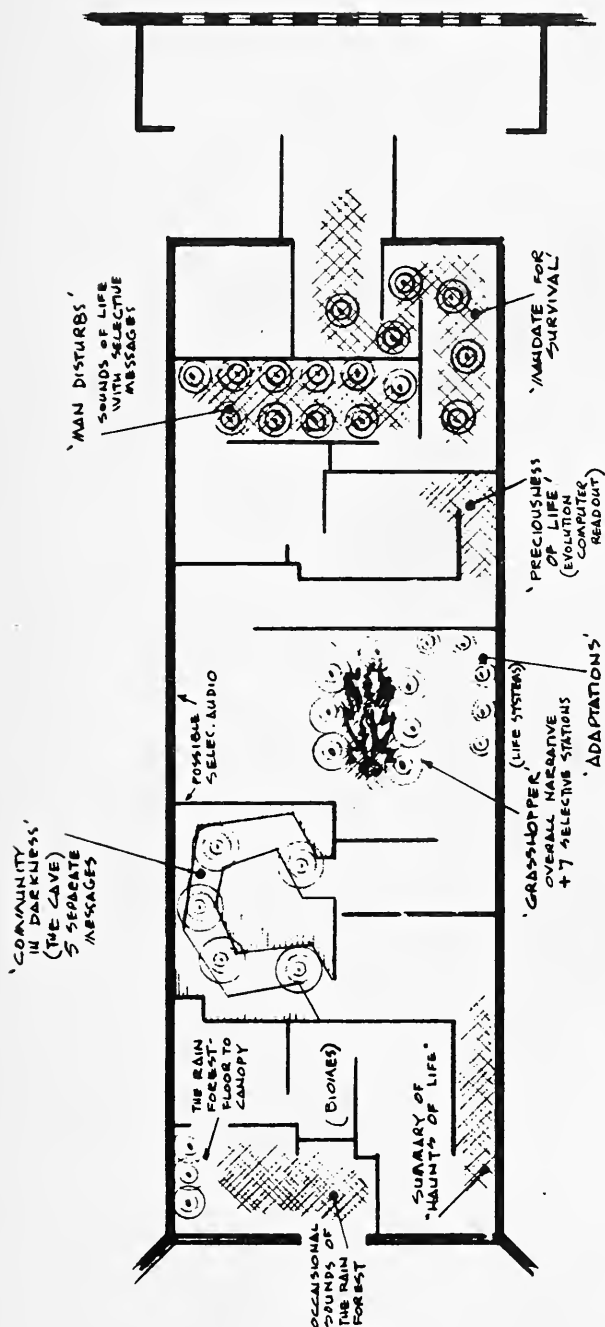
World of Living Things
HALL 10



World of Living Things

FLOW PATTERN

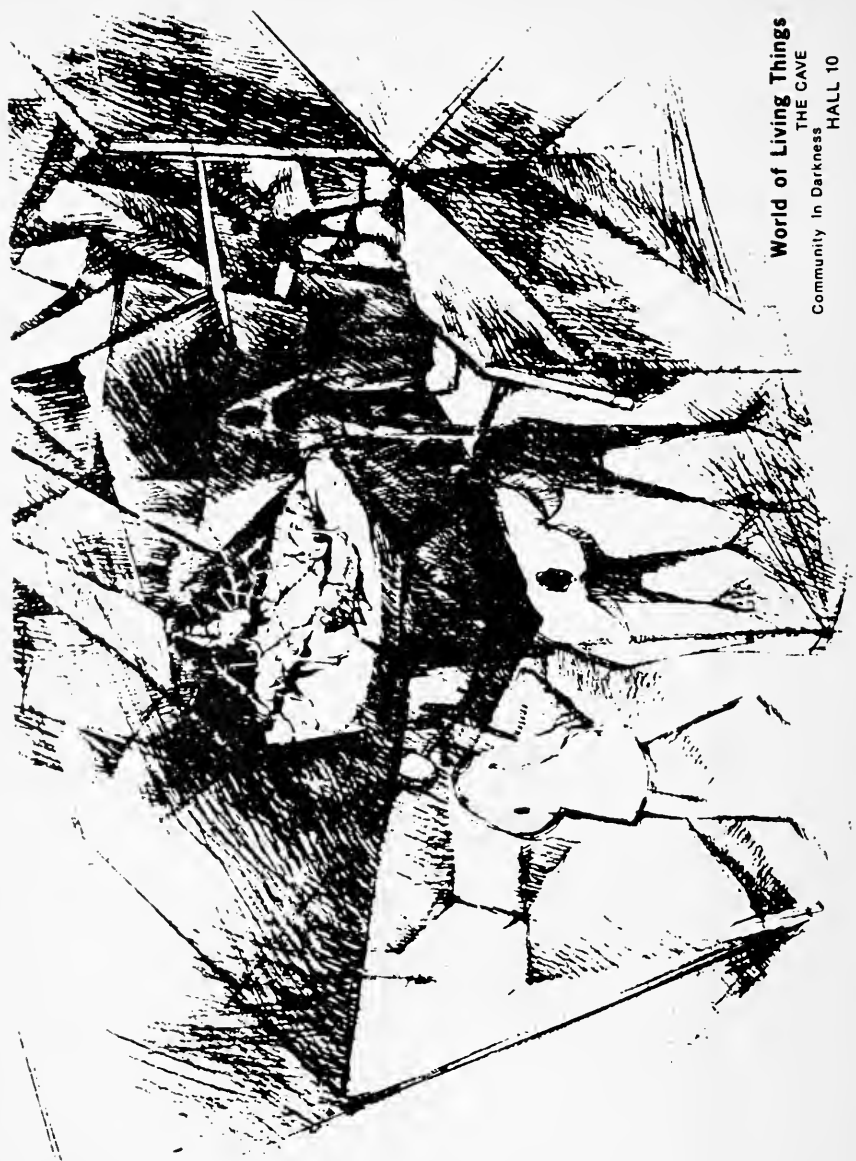
HALL 10



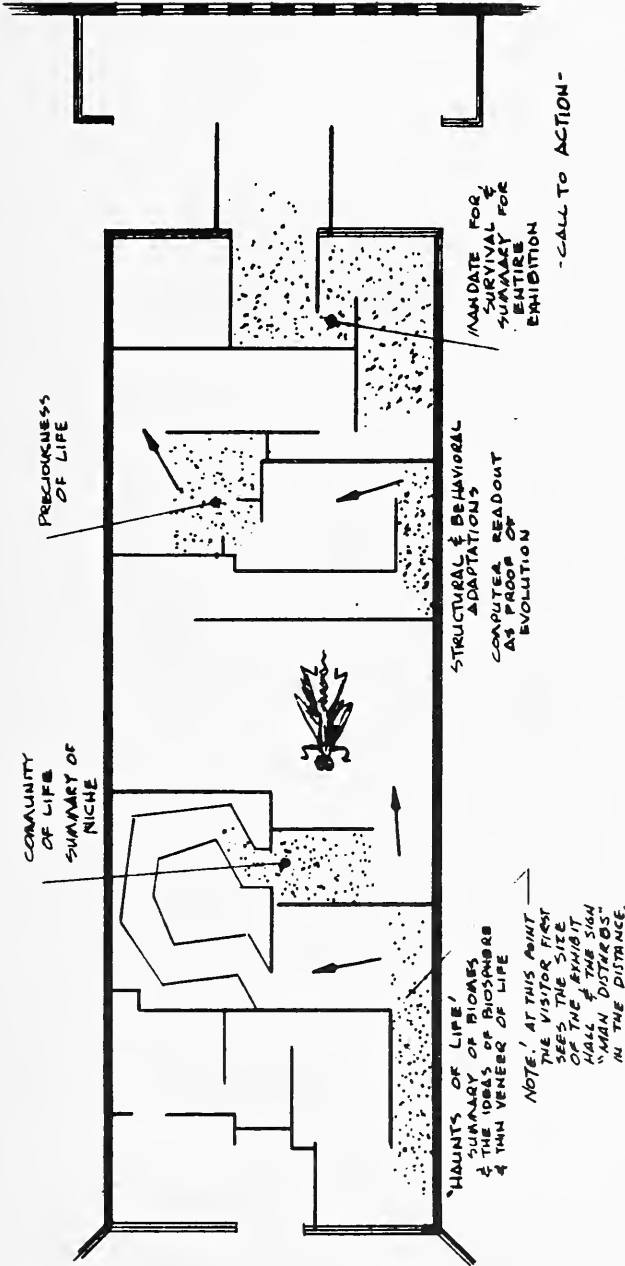
World of Living Things

AUDIO

HALL 10



World of Living Things
THE CAVE
Community in Darkness HALL 10



World of Living Things

SUMMARY AREAS

HALL 10

NATIONAL MUSEUM ACT PROGRAM

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>0</u>	<u>3</u>	<u>3</u>
11 Personnel Compensation.....	\$ 0	\$ 25,000	\$ 25,000
12 Personnel Benefits.....	0	2,000	2,000
21 Travel & Transp. of Persons	0	20,000	20,000
22 Transportation of Things	0	18,000	18,000
23 Rent, Comm. & Utilities	0	15,000	15,000
24 Printing & Reproduction.....	0	75,000	75,000
25 Other Services	0	820,000	820,000
26 Supplies & Materials	0	10,000	10,000
31 Equipment	0	15,000	15,000
41 Grants			
TOTAL.....	<u>\$ 0</u>	<u>\$ 1,000,000</u>	<u>\$ 1,000,000</u>

Analysis of Total

Pay Increase	0	0	0
Program	0	\$ 1,000,000	\$ 1,000,000

Specification of Increase (Program):Support of the Educational and Cultural Resources of the Nation's
Museums (3 positions, \$1,000,000)

The Nation's museums are in trouble. Thirty years ago their attendance totaled 50 million annual visits. Today it probably approaches 300 million visitors. Their financial resources have been strained to the breaking point. Many of these museums no longer can preserve and exhibit their national treasures of works of art, historic objects, and scientific collections without substantial national aid. Yet times call for a sharp increase in the educational and cultural opportunities which these museums are uniquely equipped to provide. Public Law 91-629 approved December 31, 1970, reauthorized appropriations for the National Museum Act through fiscal year 1974 and funding of \$1,000,000 to the Smithsonian Institution each year. This funding is requested for fiscal year 1972 which will be used approximately as follows: studies of museum cataloging and data access (\$240,000); studies of museum laboratory centers to provide conservation and other services (\$130,000); training of museum personnel (\$300,000); research in museum exhibits and other communications (\$150,000); preparation of manuals and other materials on museum techniques (\$75,000); and for program planning and administration (\$105,000).

NATIONAL MUSEUM ACT

1970 Actual.....\$0 1/
 1971 Estimate.....\$0 1/
 1972 Estimate.....\$1,000,000

Public Law 91-629 approved December 31, 1970, reauthorized appropriations for the National Museum Act through fiscal year 1974 and funding of \$1,000,000 each year to the Smithsonian Institution of which \$100,000 each would be provided to the National Endowment for the Arts and to the National Endowment for the Humanities to assist their related museum assistance activities.

An appropriation of \$1,000,000 is requested for the purposes of the National Museum Act in support of the Nation's museums.

Need for Increase--The justification for the programs authorized by the National Museum Act is found in the following extracts from America's Museums: The Belmont Report:

This is a report on a priceless national treasure--the works of art, the historic objects and the scientific collections in the custody of America's museums. In scope and magnitude this treasure is unmatched by that of any other nation, and it has enriched the minds and lives of countless Americans. Once lost, it can never be replaced.

Today the institutions which have this treasure in their custody are in serious trouble. The totally unpredicted popular success of American museums has strained their financial resources to the breaking-point, has compelled them to deny service to much of the public and will require many of them, unless help comes, to close their doors. Museums have arrived at the point where they can no longer preserve and exhibit the national treasure without substantial national aid.

* * * * *

Thirty years ago America's museums reported that their attendance totaled 50 million visits a year. Today the total is known to be in excess of 200 million and probably approaches 300 million. Museum attendance has increased much faster than has the population of the United States. The increase has been so rapid, and has reached such a level, that museums now have to turn down requests for service. Yet the times call for a sharp increase in the educational and cultural opportunities which museums are uniquely equipped to provide.

* * * * *

Museums base their request to the Federal Government for support on the following grounds:

(1) Museums provide educational and cultural services which no other institutions in the nation either do or can provide.

1/ Approximately \$70,000 over the two year period was appropriated to the Office of the Director General of Museums for activities related to the National Museum Act.

2/ America's Museums: The Belmont Report; a report to the Federal Council on the Arts and Humanities by a special committee of the American Association of Museums: published by the American Association of Museums, Washington, 1969.

(2) A number of museums provide nationwide service on funds which are disproportionately local in origin.

(3) Though museums cooperate in anti-poverty and other Federal programs, they have not received appropriate reimbursement for this service from the Federal Government.

(4) Though the resources of museums are made available to schools, colleges, universities and individual scholars for research that is financed by the Federal Government, the Government has not helped museums meet the costs incidental to such service.

(5) The collections, facilities and staffs of museums produce research which the Government uses and the value of which is recognized by Federal departments and agencies. Increased Federal support for such research is in the national interest.

(6) The Federal Government has an obligation, as yet unmet, to assist in preserving, maintaining and wisely utilizing the national treasure in museums on behalf of all the American people. This report does not suggest that the Federal Government assume dominant responsibility for the financial support of America's museums, but it does suggest that the time has come for the Government to assume a partnership role.

The report lists ten major needs of museums as deserving priority, and divides them into two groups.

The first group includes needs which bear on the ability of museums to reach more people. These needs concern:

Nationwide services financed largely out of local funds;

Services provided by museums for the Federal Government without appropriate reimbursement;

Rehabilitation, expansion, modernization of museum buildings, equipment and exhibits to meet present and future public demands;

The training of professional and technical personnel required by museums;

Research by museums on ways of improving the quality and usefulness of museum services for the educational system and for the general public;

Expansion of traveling exhibits to reach people who do not have ready access to museums;

Increased use of mass media, including television, to make the resources of museums available to more people.

The second group of needs relates more particularly to essential internal functions of museums. These needs concern:

The financing of basic research in museums and the share of the responsibility to be borne by the museums and by the Government;

Special research into methods of conserving for posterity the art, history and science collections in museums, and provision for laboratory facilities, equipment and staff for such research;

An inquiry to determine the specifications of a computer network which would provide a modern method of storing and retrieving information on museum collections, which now are vast.

To meet these ten priority needs, museums are already devoting as much of their financial resources as they possibly can. They cannot begin to make a dent in these needs, however, without the help of the Federal Government.

While it is not possible at this time to state with precision how large a Federal contribution is required, preliminary estimates put it somewhere between \$35 million and \$60 million for the first year. At present, Federal grants of all kinds to museums (apart from the appropriations to The Smithsonian Institution) total only a fraction of \$35 million, and most are limited to scientific research of special interest to government departments and agencies.

The Committee on Museum Needs believes that the existing machinery of the Federal Government can go a considerable distance in meeting the priority needs of museums, if funds are appropriated and if certain amendments to statutes already on the books are made. Accordingly, the Committee submits the following recommendations:

That the National Museum Act be funded with an appropriation of at least \$1 million for the first year;

That grants to museums from Federal Departments and agencies already concerned with museums be sharply increased;

That the Federal Government, as a matter of basic policy, recognize museums as educational institutions, working in formal affiliation with elementary, secondary, undergraduate and graduate level institutions;

That the Federal Council on the Arts and the Humanities, in furtherance of the above basic policy, be asked to study the problems of museums further and to make recommendations with reference to existing legislation to the end that the Federal Government may meet its obligations to museums;

That this report be published for the information and use of all those concerned about the future of museums.

* * * * *

Once the Federal Government decides as a matter of policy to provide financial support for museums as it does for other educational institutions, what government machinery does it use? What agency or agencies can most logically and efficiently implement the policy?

For years museums naturally have had a close working relationship with the Smithsonian Institution. The Smithsonian, however, has not been a channel for massive Federal funds. Such Federal grants as have been made have come mainly from the National Science Foundation and from certain other discipline-oriented departments or agencies. The Office of Education also has been involved through its support of schools and other educational institutions.

Increasingly the National Endowments for the Arts and Humanities have become concerned with the problems and needs of museums, but they have yet to receive funds commensurate with the needs.

While it is true that museums are mentioned along with other educational institutions in some existing legislation, the mention has gone almost unnoticed. As a practical matter it is extraordinarily difficult for a museum to obtain any of the benefits of Federal legislation enacted in the interests of educational institutions.

For the present this report suggests that the existing machinery of the Federal Government be employed to meet the urgent needs of museums. There is already on the books a National Museum Act. There are several Federal Departments and agencies which can allocate funds to museums. There are other departments and agencies which could make funds available to museums if existing legislation were amended.

* * * * *

Consider first the Smithsonian and the National Museum Act. Within the Smithsonian the United States National Museum is the unit entirely oriented towards cooperation with other museums and their associations. Its purpose is to work cooperatively with museum professionals in the United States and abroad to increase the effectiveness of museums in the performance of their scholarly and public functions.

The Smithsonian has not, however, had massive funds or grants to distribute to museums for facilities or acquisitions or for the support of continuing museum programs. Whether or not it might be assigned such responsibilities in the future, it is clear that a number of the needs relating to museums, as museums, can be addressed immediately under the National Museum Act.

This is said because there are other services to museums which the Smithsonian has long performed and which might well be expanded. Long before there was a National Museum Act the Smithsonian was supporting service programs responsive to wide museum needs. Joseph Henry, the first Secretary, organized the international exchange of information and publications between institutions and museum professionals. He gave grants for field work to non-Smithsonian anthropologists and published the works of others. Successive administrations have continued the Smithsonian's concern with broad museum problems.

* * * * *

The National Museum Act confirms the tradition of museum services performed by the Smithsonian and names the National Museum to carry them on with the cooperation of the museums of the country. To date the Congress has not made appropriations to implement the Act. An appropriation of at least \$1 million for the first year is essential. When an appropriation is made available, as the authors of this report

urge, the American Association of Museums and its member institutions can make more rapid progress in establishing museum standards and methods of accreditation, can aid experiments with museum consortiums and mutual assistance projects, and can help museums evaluate and improve the educational value of their programs.

* * * * *

In conclusion, the Committee on Museum Needs submits the following recommendations:

That the National Museum Act be funded with an appropriation of at least \$1 million for the first year;

That grants to museums from Federal departments and agencies already concerned with museums be sharply increased, specifically the National Endowment for the Arts, the National Endowment for the Humanities, the U. S. Office of Education, and the National Science Foundation;

That the Federal Government, as a matter of basic policy, recognize museums as educational institutions, working in formal affiliation with elementary, secondary, graduate and undergraduate level institutions;

That the Federal Council on the Arts and the Humanities, in furtherance of the above basic policy, be asked to study the problems of museums further and to make recommendations with reference to existing legislation to the end that the Federal Government may meet its obligations to museums;

That this report be published for the information and use of all those concerned about the future of museums.

The funds requested for Museum Act programs are to meet the demonstrated needs of America's museums--not those of the Smithsonian Institution. The urgency of the needs is known by the Smithsonian from daily experience in responding to requests for aid and advice. The urgency has been repeatedly confirmed in discussions with the Director of the American Association of Museums representing the museum profession. An advisory committee of museum professionals selected in collaboration with the American Association of Museums will recommend procedures and policy for carrying out the high priority programs to which these estimates are addressed. Examples of the needs are suggested by the following program areas.

Studies have begun on the development of programs and technology to catalog museum holdings in science, history, and art on a national level. All require more funds to continue the studies and to start the cataloging in coordinated and compatible systems. Museum professionals and the scientists, historians, and other scholars who use museum collections in their research are much concerned with the need to make the museum collections more accessible through more comprehensive cataloging. All are concerned that the systems determined upon will be adaptable to computer storage compatible with systems used in all parts of the United States and other countries and that the computer program will be responsive to the needs of students, scholars, writers, and administrators, and be equally usable for those concerned with the circulation of collections and the production of traveling exhibitions.

To provide support for studies of computer cataloging and data access conducted by consortiums of museums and museum associations there will be required in fiscal year 1972, in other services..... \$240,000

To meet a number of the described needs of museums for conservation, for exhibitions, for museum-school materials, for television and radio productions based on collections and activities, it has been proposed that museum laboratory centers be established in various locations throughout the United States. These

laboratory centers would be supervised and supported in part by groups of museums or by regional conferences of museums to provide services and work on a cost-sharing basis. To determine the feasibility of such laboratory centers including the volume and nature of the support available and the volume and kinds of services museums would require from them, a study would be organized and supervised by the American Association of Museums. To support the study and to conduct pilot tests of services to museums there is required in other services \$30,000 for the study and \$100,000 for pilot tests..... \$130,000

The most frequently expressed need of America's museums is for trained personnel at both the professional curatorial level and the museum technician grade. Three categories of training require funding. One includes the several varieties of combined museum-university courses for graduate students preparing to enter museum work in curatorial positions in science, art, or history. Another category of training is required for upgrading the skills of museum career personnel already serving in curatorial positions in smaller museums who would be brought up-to-date on the latest doctrines and techniques of museum work through work training in more advanced museums. The third category is for the work training of museum technicians in science, history, or art, and in conservation, exhibition, museum education, and in the management of museum collections and library and archival resources.

Training in these categories and subjects will vary in time from 3 to 12 months with an estimated average cost of \$6,000 a trainee including the support of the trainee and the expenses of the museums and universities providing the training. To train in fiscal year 1972, 50 trainees will require in other services.....\$300,000

Systematic and imaginative research is required to improve the performance of museums. Inquiry is needed into means to improve the public visitors' museum experience, to make exhibits more effective in communicating with the viewer, to enable museums to be of greater use to schools, colleges, and universities, to make museum resources available to disadvantaged people and communities, and to experiment, develop, test, and evaluate all of the museum's varied functions. To support and accelerate research in museum opportunities and practices in cooperation with museums, and their associations, there is required \$150,000 for other services for five research programs.....\$150,000

A great need exists for manuals of instruction on the design and preparation of exhibits, on conservation of museum objects, on museum lighting, on museum education, on museum security, and on museum administration. The opportunity to publish manuals will stimulate experts in the field to contribute manuscripts based on their experience and knowledge. The research and surveys proposed will produce much of value for printing and distribution. For the printing and reproduction of manuals, photo essays, film strips, and other materials requires in fiscal year 1972 \$75,000

For the administration of the program, a program manager, a secretary-stenographer, and a clerk-typist are required, estimated to cost in salaries and benefits.....\$27,000

An advisory committee will be formed with the advice of museum directors and museum associations to advise on the programs to be funded.

To support the staff and the advisory committee, it is estimated that there will be required in fiscal year 1972, for travel \$20,000; for transportation of goods \$18,000; for communications and data processing \$15,000; for supplies \$10,000; and for equipment \$15,000 \$78,000

Total \$1,000,000

ACADEMIC AND EDUCATIONAL PROGRAMS

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>20</u>	<u>3</u>	<u>23</u>
11 Personnel Compensation.....	\$ 181,000	\$ 26,000	\$ 207,000
12 Personnel Benefits.....	14,000	1,000	15,000
21 Travel & Transp. of Persons	10,000	4,000	14,000
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction.....			
25 Other Services	387,000	88,000	475,000
26 Supplies & Materials	3,000	2,000	5,000
31 Equipment	4,000	5,000	9,000
41 Grants			
TOTAL.....	<u>\$ 599,000</u>	<u>\$ 126,000</u>	<u>\$ 725,000</u>

Analysis of Total

Pay Increase	\$12,000	\$11,000	\$23,000
Program	\$587,000	\$115,000	\$702,000

Specification of Increase (Program):Graduate Studies (\$55,000)

Federal facilities developed for reference and research should serve the universities as auxiliary resources for the advanced training of students and faculty. To strengthen the Institution's graduate studies program, an increase of \$24,000 is requested to support one postdoctoral appointment in environmental sciences, and one in systematic biology; \$11,000 are requested for two predoctoral stipends in American history and art; and \$20,000 are sought for the purpose of creating internship appointments for graduate students to work in specialties recommended by their faculty advisors.

Elementary and Secondary Education (3 positions, \$60,000)

Within the present funding levels, the Institution is able to fill only a small fraction of the existing demand for elementary and secondary educational services. The Institution is currently scheduling tours for serving about 100,000 school children in grades 1-12; or one tour per child for about one seventh of the metropolitan area enrollment. This is less than adequate. A planned expansion in this activity has been developed, and to achieve the projected levels, an additional \$60,000 are being requested this year. By 1974, the Institution hopes to be able to accommodate the equivalent of about 250,000 children per school year with at least one scheduled tour. The requested increase would allow extending the services now provided to two new areas, the American Indian, and Technology (2 positions, \$17,000), one additional tour scheduler (\$6,000), three new museum educational traineeships (\$16,000), and additional support costs associated with this expansion (\$21,000).

ACADEMIC AND EDUCATIONAL PROGRAMS

1970 Actual	\$572,000
1971 Estimate	\$599,000
1972 Estimate	\$725,000

A major Smithsonian objective is to make its learning resources available to the formal educational community and to the general public. At the higher education level, the Institution develops and coordinates fellowship programs through a variety of cooperative agreements with the nation's universities. The program promotes research opportunities and advanced study training for doctoral candidates and postdoctoral investigators. Seminars in various curatorial and disciplinary areas are conducted which are central to the interests of the students and the Smithsonian's research efforts. Formal educational activities below the university level are also a responsibility of this program. These include the popular escorted tours for schools, the preparation of teaching guides, lectures, and audio-visual materials. Public use of the educational facilities of the Institution is growing rapidly at all levels of training. The Smithsonian is considered a significant supplementary educational resource by colleges and universities and by elementary and secondary school systems.

A program increase of \$126,000 is requested, including \$55,000 for higher education and research training in four areas, and \$60,000 for expansion of the elementary and secondary educational program. Also requested are \$11,000 for necessary pay increases.

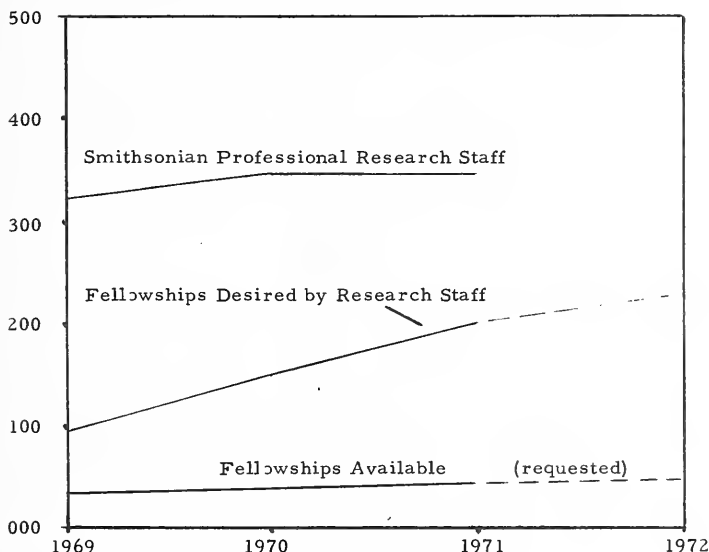
Need for Increase1. Graduate Studies (\$55,000)

The Institution's capacity to supervise visiting investigators has greatly increased since 1967, but the number of stipends available has remained about the same (see Figure 1). With present funds, only 20 Ph.D. candidates can be supported each year, so that the average staff member can expect to supervise a dissertation only once in 17 years. Only 19 postdoctoral appointees can now be supported each year. Stipends for these appointments are allocated in accordance with scholarly discipline. There are only five for 98 Institutional systematic biologists, only two for 28 Institutional specialists in the environmental sciences, and similar shortages through nine areas of study. A list of investigators currently at the Institution is shown on a following page.

Since 1967 the Smithsonian has perfected the administrative procedures necessary for this program and demonstrated that visitors may receive worthwhile training as they complete research projects of high intrinsic worth. As a guarantee of cooperation between the Smithsonian and other research establishments and a contribution to quality training in scarce specialties, the higher education program should be expanded to serve at least twice as many Ph.D. candidates and postdoctoral investigators for a professional staff of the present size (345) and be expanded proportionately with each increase in number of professional staff thereafter. A survey of staff interest has established a willingness to accommodate many more investigators than present funding allows. Consistently more highly meritorious applications for stipends have been received than could be awarded. The Institution has determined that the deficiency to be corrected is \$300,000 per year. This shortage, which has come into existence over the past four years, should be eliminated as rapidly as possible. The first installment on this shortage is sought for fiscal year 1972 in the amount of \$55,000 for stipends; \$24,000 are requested to support one additional postdoctoral investigator in environmental sciences and one in systematic biology; \$11,000 are requested for two additional predoctoral stipends in American history and art. The sum of \$20,000 is requested for internship appointments for graduate students to become associated with the activities and resources of the Smithsonian in

Figure 1

Growth in Fellowships Desired By and Available To
Professional Research Staff
Fiscal Years 1969-71, and Estimated Fiscal Year 1972



specialties recommended by faculty advisors in their home institutions. Summer appointments, once supported by private funds, have been discontinued in recent years, and the lack of opportunities for students at earlier stages of their graduate training is keenly felt. The Institution receives many requests to cooperate with university departments which share its interests. It is proposed to develop a system of "cooperative fellowships" whereby each participating university contributes to the student's expenses while at the Smithsonian. The George Washington University has created a "Smithsonian Fellowship" in American Studies, and other universities have indicated a desire to follow suit in this and other fields. The annual cost per student is estimated to be \$2,000. The introduction of a principal of cost-sharing will be a further guarantee of the cooperative character of Smithsonian programs in higher education.

2. Elementary and Secondary Education (3 positions, \$60,000)

Against a background of deepening public concern about the quality of classroom experience, the Institution acknowledges a heavy obligation to draw upon its unconventional information resources to enrich education. As a result of a concentrated effort to increase the use of its exhibit spaces, the number of visits by school classes and teachers escorted by volunteer docents has more than doubled in the two years since 1968. This required the addition of a scheduling

staff and a three-fold increase in the number of volunteer docents. A number of different arrangements are being tried to associate intermediate-level education staff with curators in the bureaus to draw upon the Institution's resources of subject matter in the preparation of tours.

In areas where educational staff and interested curators are lacking, tours cannot be offered. This is the case in technology in the National Museum of History and Technology, biological topics at the National Zoological Park, and oceanography at the National Museum of Natural History. Based upon existing subject matter competence, using tour subjects already developed, the Institution expects in fiscal year 1971 to accommodate a total of 100,000 visits by school children.¹ However, the Institution is capable of serving a much larger children's audience, and the demand is present. The capacity of major exhibit spaces would be over 400 class visits per week (330,000 school children annually) if new subject matter tours could be developed. With the addition of three schedulers, and six staff associates in education over the next three years, the Institution could move from the 1970 actual level of 80 tours per week (about 65,000 annual visits) to over 300 per week (250,000 annual visits) by 1973-74.² Figures 2, 3, and 4 present some historical information on these tours.

¹ Figures are based on an approximate twenty-eight week Smithsonian school tour schedule.

² In terms of the Institution's current funding capability, for every child (grade 1 - 12) taking only one of the scheduled tours during the school year, there are five or six that are not being accommodated at all. Elementary and secondary enrollment in the metropolitan area for the current year is about 650,000. Even if the Institution were presently operating its school tours at the projected 1973-74 level of 300 tours per week, only about 38 percent of the area's youthful audience would be served--with but one visit.

Figure 2 -- Growth of subject matter tours and trained volunteers

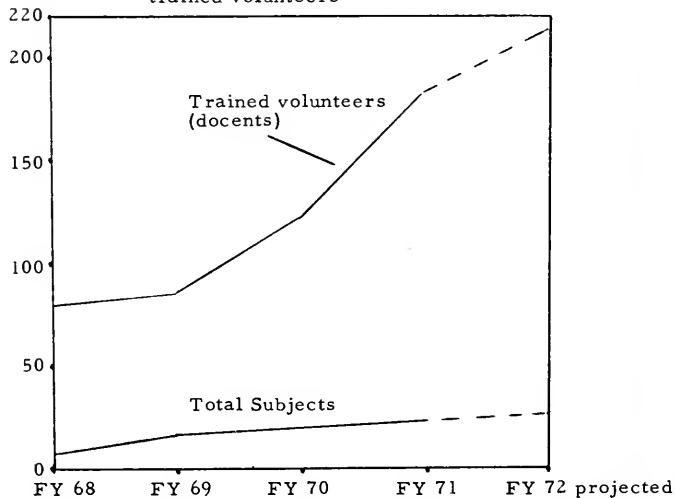


Figure 3 --Number of students serviced by elementary and secondary school tours.

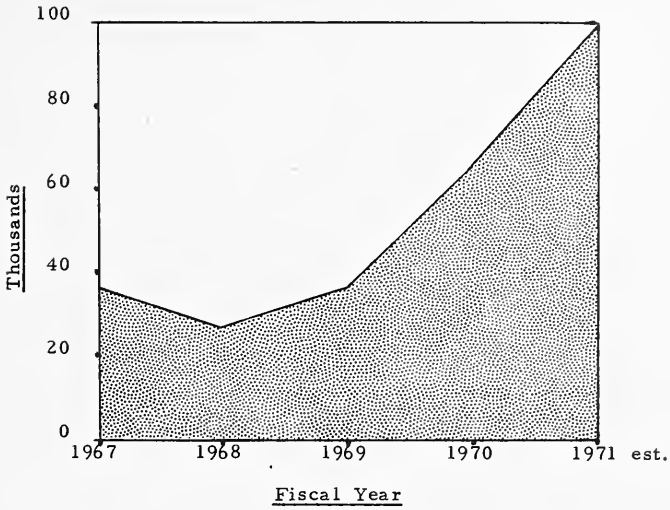
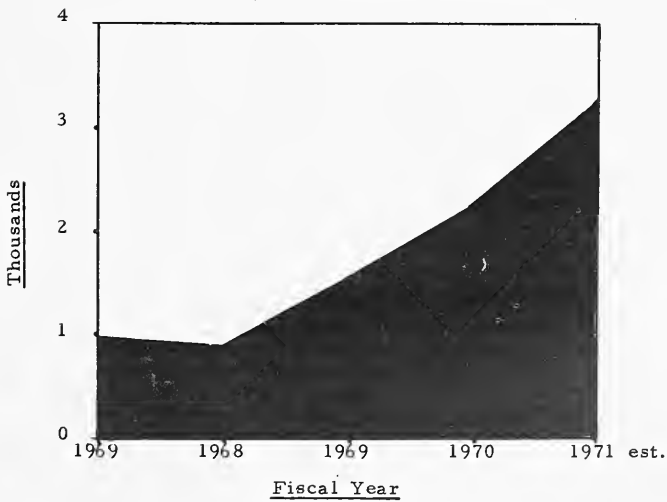


Figure 4 --Number of elementary and secondary school tours provided.



To implement this plan, the Institution requests an increase of \$60,000 in fiscal year 1972 and an approximate like amount in each of the following two years in order to add one scheduler each year, and broaden the range of education staff subject matter by two fields per year (for fiscal year 1972, the new fields would be the American Indian, and Technology). This amount would also support three additional traineeships in museum education and provide funds for direct program costs other than salaries.

It would be difficult to establish an accurate dollar value for the efficient paraprofessional museum teaching services rendered by a corps of some 150 volunteer docents who conducted school tours for 67,650 boys and girls in grades kindergarten through 12 during school year 1969-1970. However, the influence of the professionally competent staff associate whose duties include (1) development of teaching curricula in pertinent subject areas, (2) establishing useful relationships with curators for the purpose of utilizing the Institution's research and collections resources (3) supporting pre-service and in-service training of docents, and (4) continual monitoring of these volunteers to ensure quality control is directly responsible for a personnel multiplier effect which makes the program possible over such a broad range. Each new staff associate would have responsibility for a projected dozen additional docents in new content areas.

The additional tour scheduler will be necessary to accomodate the steadily increasing workload handled by the School Tours Unit as it manages the logistics of matching requests by the nation's schools with appropriate personnel and material resources in the Smithsonian's several museums. The burden of this unit often extends well beyond requests for tours into inquiries for other educational services to school children.

Funds requested for direct program costs are necessary to provide funds for a total operational force of 170 professional and volunteer staff, all of whom have duties which place them in a direct service relationship with the public. Increased demand for external educational services require additional money to support the program of teacher education, docent training, dissemination of information to schools and other museums, and development of audio-visual materials and other teaching aids for enrichment of tours. The Smithsonian considers the utilization of the full range and depth of potential subjects by schools and by visiting classes as being of even greater importance than the attainment of a numerical goal.

The potential importance of museums and other community resources for education in the arts has long been established. The Smithsonian recently completed for the National Science Foundation an assessment of a similar potential in the sciences. Thus, the attainment of full capacity in the use of such a major community resource is a matter of national interest. The attainment of full capacity for class visits within the Smithsonian complex would be a landmark for other efforts underway everywhere in the Nation to draw upon community resources outside the schools for educational purposes. Both the National Portrait Gallery and the National Collection of Fine Arts have undertaken very worthwhile experimental programs in elementary and secondary education. Other new efforts are being planned for the National Museum of Natural History, the National Museum of History and Technology, National Air and Space Museum, and the National Zoological Park. If the novel subject matter of these museums and their non-didactic open qualities finds counterparts in the classroom, museums such as those of the Smithsonian will have performed a distinctive service to education. The Smithsonian program could serve as a benchmark for reference by other metropolitan school systems and museums, a welcome contribution in a frontier area of educational program development where standards for measurement have not yet come widely into use.

The requested \$60,000 would be distributed as follows: two new staff associate positions in anthropology and technology (\$17,000); one additional scheduler (\$6,000); three new traineeships in museum education (\$16,000); and other program support costs (\$21,000).

SMITHSONIAN VISITING RESEARCH ASSOCIATES, *1970-1971

Name & University	Research Title
PROGRAM IN EVOLUTIONARY AND SYSTEMATIC BIOLOGY:	
<u>O. Sylvester Adegoke</u> U. of Calif., Berkeley	Tertiary paleontology of southern Nigeria and ecology and distribution of living Foraminifera in the Gulf of Guinea
<u>Arnfried Antonius</u> U. of Vienna, Austria	Occurrence and distribution of stony corals in Venezuelan waters
<u>James A. Doyle</u> Harvard U.	Studies on angiosperm pollen and megafossils of the Potomac Group (Cretaceous) of Maryland and Virginia
<u>Miloslav Kovanda</u> Charles U., Prague	Preparation of a monographic electronic data bank of Campanula section Heterophylla
<u>Jerry A. Powell</u> (partial support) U. of Calif., Berkeley	Biosystematic study of Neotropical Sparganothidini (Lepidoptera: Tortricidae)
<u>Kenneth A. Beem</u> U. of Cincinnati	Choctawhatchee Formation of northwestern Florida
<u>David R. Budge</u> U. of Calif., Berkeley	Study of late Ordovician and Silurian rocks and contained coral fauna in eastern Great Basin
<u>Theodore Gary Gautier</u> U. of Kansas	Cryptosome Bryozoa from Permian (Leonardian) of the Glass Mountains, Texas
<u>Eckart Hakansson</u> U. of Copenhagen	The free-living Cheilostomata from the White Chalk of Denmark
<u>Catherine Jane Kerby</u> George Washington U.	A life history study of the polychaetous annelid, <u>Sabella microphthalmia</u>
PROGRAM IN ENVIRONMENTAL SCIENCES:	
<u>Clarke Brooks</u> U. of Chicago	Analysis of algal biliproteins
<u>Jack H. Burk</u> New Mexico State U.	Production and energy status of deciduous tree species with regard to annual cycle of energy utilization and standing crop
<u>Stephen I. Rothstein</u> Yale U.	An experimental investigation of host preference in the brown-headed cowbird
<u>Robin Doughty</u> U. of Calif., Berkeley	The feather trade; its cultural and biogeographical significance in England and America
<u>Christen E. Wemmer</u> U. of Maryland	Behavioral concomitants of morphology and the relationship of the form-function complex to social organization and habitat utilization
PROGRAM IN EVOLUTIONARY AND BEHAVIORAL BIOLOGY, TROPICAL ZONES:	
<u>Alicia Breymeyer</u> U. of Warsaw	Ecology of grasslands environments in tropical zones
<u>Jeffrey B. Graham</u> Scripps Inst. of Oceanography	Studies on the adaptive radiation of tropical marine fishes
<u>Ian H. Healey</u> U. of Wales	The role of animals in decomposition processes in the tropical forest
<u>James R. Karr</u> U. of Chicago	Comparisons of structure of avian communities in selected tropical areas

*Postdoctoral Associates underlined

David L. Meyer

Yale U.

Eugene Morton

Yale U.

A. Ross Kiester (partial support)

Harvard U.

John E. McCosker

Scripps Inst. of Oceanography

William B. Ramirez

U. of Kansas

Studies in the functional morphology of living
and fossil crinoids

Ecological aspects of communication in birds

Studies on the ecology and social behavior of
Panmanian Gecko Gonatodes albogularis

Substrate preferences and comparative func-
tional morphology of eels, family Ophichthidae

Ecological relationships and specificity between
wasps (Agaonidae) and Ficus

PROGRAM IN PHYSICAL SCIENCES:

John J. Gurney

Capetown U.

Douglas D. Nelson

U. of South Carolina

Electron microprobe studies of kimberlite and
and its associated ultrabasic xenoliths

Clay mineralogy and sedimentation of the
Outer Banks, North Carolina

PROGRAM IN ANTHROPOLOGY:

James H. Rauh

Tulane U.

Mario Jose Sanoja

U. Cent. Venezuela

D. Gentry Steele

U. of Kansas

Rayna D. Green

Indiana U.

Iraida Vargas (partial support)

U. Cent. Venezuela

An investigation of the structure of the Borgia
group of manuscripts

Ecology and cultural areas in pre-Columbian
Venezuela

A re-evaluation of the within-group variation
of the family Tupaiidae

The image of the Indian in the popular
imagination

Aboriginal cultural development in eastern
Venezuela and their relationships with the
Lesser Antilles

PROGRAM IN HISTORY OF ART AND MUSIC:

Robert E. Eliason

U. of Missouri, K. C.

Francis V. O'Connor

Johns Hopkins U.

Shelley Fletcher

New York U.

William D. Morgan (6 mo. appt.)

U. of Delaware

Richard N. Murray

U. of Chicago

Phylis North (6 mo. appt.)

Early American wind instruments and their
makers

Historical studies of American art

Pigment analysis of the American painting
collection at NCFA

Henry Vaughan, 1845-1917, Gothic revival
architect

A study of figurative mural painting, public and
private, in the U. S. 1890-1920

Max Weber paintings, 1905-1920

PROGRAM IN AMERICAN HISTORY:

Leonard P. Curry

U. of Kentucky

William B. Floyd (7 mo. appt.)

George Washington U.

Yvonne Marie Lange

U. of Pennsylvania

Peter H. Smith

George Washington U.

Roots of American urbanism, 1800-1850

An historical study of Thomas Sully

Santos, the household wooden saints of Puerto
Rico

The Great American Wheel Conspiracy: Hoopes
Bros. and Darlington, 1890-1920

PROGRAM IN HISTORY OF SCIENCE AND TECHNOLOGY:

- Sandra S. Herbert (partial support) Erasmus Darwin's materialistic physiology and its importance for his grandson Charles' discovery of evolution through natural selection
Brandeis U.
- Stephen Cooper History of American science and technology
Princeton U. with emphasis on interrelationships between science and government
- Barbara Ann Kaplan The relevance of alchemical and hermetic ideas
U. of Maryland to 13th and 14th century medicine in western Europe
- Sally G. Kohlstedt The American Association for the Advancement
of U. of Illinois of Science, 1840-1860; the formation of a national scientific community

PROGRAM IN MUSEUM STUDIES:

- Joan W. Mishara Conservation studies of metals, particularly
NYU Inst. of Fine Arts metallic objects of art

RESEARCH AWARDS PROGRAM

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>0</u>	<u>0</u>	<u>0</u>
11 Personnel Compensation.....\$		\$	\$
12 Personnel Benefits.....			
21 Travel & Transp. of Persons			
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction.....			
25 Other Services	400,000	50,000	450,000
26 Supplies & Materials			
31 Equipment			
41 Grants			
TOTAL.....	<u>\$ 400,000</u>	<u>\$ 50,000</u>	<u>\$ 450,000</u>

Analysis of Total

Pay Increase	0	0	0
Program	\$400,000	\$50,000	\$450,000

Specification of Increase (Program):Funding Multiyear Awards (\$50,000)

The Research Awards Program funds worthy, intramural research projects not funded either by the regular plans of operation of the Smithsonian's science bureaus or by outside agencies. Since its inception in fiscal year 1966, 234 proposals have been funded and there have been more than 200 publications in the fields of biology and anthropology directly attributable to this support. The program also has enabled Smithsonian scientists to engage in productive field research with colleagues from other institutions. An additional \$50,000 is requested to help fund multiyear awards for better stability, continuity, and planning of research. This additional sum will also help to combat the higher costs of basic research brought about by inflation in the costs of laboratory supplies, equipment and services.

RESEARCH AWARDS PROGRAM

1970 Actual	\$400,000
1971 Estimate	\$400,000
1972 Estimate	\$450,000

The purpose of the Smithsonian Research Awards Program is to support worthy, intramural research projects not funded either by outside agencies or through the regular plans of operations of the science bureaus.

Prior to fiscal year 1966, the Smithsonian Institution received funds from the National Science Foundation for research projects of individual staff members. In the fiscal year 1966 appropriation, the Congress prohibited the NSF from making grants for scientific research to other Government agencies. The NSF instituted a further limitation that it would no longer make grants to any agency or institution receiving direct federal appropriations. The Research Awards Program was begun in fiscal year 1966 by an appropriation of \$350,000 to the Smithsonian Institution for the purpose of financing new or continuing research projects formerly eligible for support from the NSF. Funding for the program increased to \$400,000 in fiscal year 1967 where it has remained level.

Proposals are submitted each year by members of the Smithsonian Institution staff only and cover all phases of research in the scientific bureaus. All proposals have undergone a careful scientific or scholarly review in their respective bureaus before they are reviewed by members of the Research Awards Advisory Committee. The members of the Committee are selected on the basis of their broad experience in scientific research, their understanding of scholarship, and their ability to discern basic values in almost any field.

An increase of \$50,000 is requested to help fund multiyear awards and offset inflation in the cost of basic research.

Need for Increase--From its inception in fiscal year 1966 through fiscal year 1971, 234 proposals were funded through the Research Awards Program. There have been more than 200 publications in the fields of biology and anthropology directly related to the research accomplished from this support. Also, an initial research effort activated by a research award, in many cases has been continued through funding by other federal granting agencies, and research and development foundations.

In fiscal year 1971, members of the Smithsonian staff were allowed for the first time to submit proposals for funding up to three years in order to provide for better stability, continuity, and planning of research. There were 72 proposals received for fiscal year 1971 amounting to \$1,654,771, of which 40 were funded in the amount of \$400,000. Amounts of \$224,000 are committed to second-year funding and \$71,000 to third-year funding. Thirty-two proposals had to be rejected for lack of funds. The salary of the principal investigator is never included in the budget of the proposal; it is borne by the Smithsonian Institution.

Following pages show a comparison of proposals funded for fiscal year 1970 and fiscal year 1971 (Table I), a comparison of proposals by dollar volume (Table II), and a comparison of proposals by bureau (Table III).

The Research Awards Program is intended to cope with a serious problem confronting many scientists who wish to undertake non-routine fundamental research of the kind normally undertaken by university research scientists but which cannot be supported from the federal "Salaries and Expenses" appropriation. The large number of proposals that were not funded in fiscal year 1971 and in previous years is of grave concern to the Institution. This concern is based on the fact that the work supported by the Research Awards Program is often the

best of the Institution's productivity and the reason for acquiring scientists of the highest competence and imagination. If the Smithsonian cannot provide this kind of support, it might not attract a high caliber of scientists nor retain them thereafter. Further, it serves as an important means whereby scientists of the Smithsonian Institution may engage in collaborative field research with colleagues located in other institutions. Many opportunities for participation in expeditions and other field projects would be lost were it not for the Research Awards Program providing modest, but essential, research assistance. The problem affects all the research bureaus, but is especially acute in the National Museum of Natural History where most of the operational funding must go to the maintenance of the National Collections.

TABLE I

RESEARCH AWARDS PROGRAM
COMPARISON OF PROPOSALS FUNDED
FY 1970 and FY 1971

	FY - 1970				FY - 1971			
	Total Number of Proposals Received	Amount of Proposals Received	Total Amount Funded	Number of Proposals Funded	Total Number of Proposals Received	Amount of Proposals Received	Total Amount Funded	Number of Proposals Funded
SUMMARY - RESEARCH AWARDS PROGRAM:								
NATIONAL MUSEUM OF NATURAL HISTORY	45	594,886	295,785	31	43	1,067,557	281,915	27
RADIATION BIOLOGY LABORATORY	3	25,643	11,000	1	4	147,957	33,000	3
NATIONAL MUSEUM OF HISTORY AND TECHNOLOGY	3	7,799	910	1	3	5,856	5,785	3
SMITHSONIAN TROPICAL RESEARCH INSTITUTE	2	61,610	45,000	2	4	105,584	43,400	4
SMITHSONIAN ASTROPHYSICAL OBSERVATORY	5	173,741	34,960	3	17	317,780	26,000	2
NCFA/NPG CONSERVATION LABORATORY	1	16,050	-0-	-0-	-0-	-0-	-0-	-0-
INFORMATION SYSTEMS DIVISION	1	16,716	-0-	-0-	1	10,037	9,900	1
NATIONAL ZOOLOGICAL PARK	1	20,851	12,345	1	-0-	-0-	-0-	-0-
TOTAL	61	917,296	400,000	39	72	1,654,771	400,000	40

TABLE II

FY 1971 RESEARCH AWARDS PROGRAM
COMPARISON OF PROPOSALS BY DOLLAR VOLUME
FY 1967 - FY 1971

MORE THAN	LESS THAN	NUMBER OF PROPOSALS				
		FY 1967	FY 1968	FY 1969	FY 1970	FY 1971
-0-	5,000	16	19	6	13	7
5,000	10,000	19	21	22	14	17
10,000	15,000	19	18	12	12	6
15,000	20,000	4	6	7	7	10
20,000	25,000	3	2	5	5	10
25,000	30,000	1	3	6	3	6
30,000	35,000	3	3	1	4	4
35,000	---	<u>1</u>	<u>2</u>	<u>1</u>	<u>3</u>	<u>12</u>
TOTAL		66	74	60	61	72

TABLE III

FY 1971 RESEARCH AWARDS PROGRAM
COMPARISON OF PROPOSALS BY BUREAU
FY 1967 - FY 1971

	NUMBER OF PROPOSALS						AMOUNT REQUESTED			FY 1971
	FY 1967	FY 1968	FY 1969	FY 1970	FY 1971	FY 1971	FY 1968	FY 1969	FY 1970	
OFFICE OF THE SECRETARY	1	1	-0-	-0-	-0-	10,000	9,351	-0-	-0-	-0-
MUSEUM OF NATURAL HISTORY	52	62	45	45	43	545,902	699,819	538,933	594,886	1,067,557
RADIATION BIOLOGY LABORATORY	2	5	4	3	4	23,523	59,296	41,759	25,643	147,957
MUSEUM OF HISTORY AND TECHNOLOGY	3	2	3	3	3	17,158	23,420	33,266	7,799	5,856
SMITHSONIAN TROPICAL RESEARCH INSTITUTE	3	1	2	2	4	45,274	22,645	57,763	61,610	105,584
SMITHSONIAN ASTROPHYSICAL OBSERVATORY	1	2	5	5	17	163,000	39,800	118,780	173,741	317,780
NATIONAL AIR AND SPACE MUSEUM	1	-0-	-0-	-0-	-0-	14,500	-0-	-0-	-0-	-0-
OFFICE OF OCEANOGRAPHY AND LIMNOLOGY	2	-0-	-0-	-0-	-0-	14,984	-0-	-0-	-0-	-0-
OFFICE OF ECOLOGY	1	1	-0-	-0-	-0-	9,251	8,956	-0-	-0-	-0-
NCFA/NPG CONSERVATION LABORATORY	-0-	-0-	1	1	-0-	-0-	-0-	12,300	16,050	-0-
INFORMATION SYSTEMS DIVISION	-0-	-0-	-0-	1	1	-0-	-0-	-0-	16,716	10,037
NATIONAL ZOOLOGICAL PARK	-0-	-0-	-0-	1	-0-	-0-	-0-	-0-	20,851	-0-
TOTAL	66	74	60	61	72	843,592	863,287	802,801	917,296	1,654,771

ADMINISTRATIVE AND CENTRAL SUPPORT

Increases being requested in this section cover primarily the central administrative and technical services which operate in support of the program units. Included are the Office of the Secretary, Office of the General Counsel, Office of the Treasurer, Office of Personnel Administration, Libraries, Press, Smithsonian Archives, Photographic Services Division, Supply Division, Administrative Systems Division, Travel Services Office, Duplicating Section, and the Information Systems Division. As a group, the requested increases for fiscal year 1972 amount to \$602,000 or about 7 percent of the total requested Institutional increases.

For the last several years, actual operations indicate that the costs of administering and supporting the diverse program activities have amounted to 15 percent to 18 percent of total obligations. The Smithsonian desires to keep the actual costs of the support function in this range, and the requests presented reflect what is necessary to strengthen certain areas. The expenditures of these units are viewed as necessary to cover general administrative and technical activities, in the manner of an operating overhead account, with the exception of the amounts requested for physical plant operations, maintenance, and protection by the Buildings Management Department which are presented separately. These are an increase of \$807,000 or 9 percent.

Since the needs of the support group follow rather closely the developmental pattern of the program units, in future years' budget presentations an effort will be made to consolidate the number of organizational requests and reduce the complexity of several separate budget submissions. For fiscal year 1972, however, in order to promote an understanding of the overall operations, individual descriptions and requests are submitted for the administrative support units.

OFFICE OF THE SECRETARY

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions . .	<u>38</u>	<u>2</u>	<u>40</u>
11 Personnel Compensation	\$ 534,000	\$ 49,000	\$ 583,000
12 Personnel Benefits	43,000	3,000	46,000
21 Travel & Transp. of Persons	10,000	1,000	11,000
22 Transportation of Things			
23 Rent, Comm. & Utilities	1,000	0	1,000
24 Printing & Reproduction			
25 Other Services	4,000	3,000	7,000
26 Supplies & Materials	3,000	1,000	4,000
31 Equipment	3,000	1,000	4,000
41 Grants			
TOTAL	<u>\$ 598,000</u>	<u>\$ 58,000</u>	<u>\$ 656,000</u>

Analysis of Total

Pay Increase	\$22,000	\$12,000	\$34,000
Program	\$576,000	\$46,000	\$622,000

Specification of Increase (Program):

Operations Officer and Public Service Assistant and Program Funds (2 positions \$46,000)

An operations officer at a cost of \$20,000 is needed to assist the Under Secretary in the planning, direction, coordination, and development of the administrative and central support activities in order that they will be of maximum service to the requirements of our museums, galleries, and laboratories. An assistant to the Assistant Secretary (Public Service) also is required to help plan and produce a range of educational materials such as books, kits, and recording cassettes drawing upon the Institution's resources. This position would cost \$20,000. And, lastly, an additional \$6,000 is required for office support costs.

ADMINISTRATIVE AND CENTRAL SUPPORT ACTIVITIES
OFFICE OF THE SECRETARY

1970 Actual.....	\$462,000
1971 Estimate.....	\$598,000
1972 Estimate.....	\$656,000

The Office of the Secretary is composed of the immediate offices of the Secretary, the Under Secretary, the Assistant Secretary (Science), the Assistant Secretary (History and Art), the Assistant Secretary (Public Service), and the Office of Audits.

For fiscal year 1972, a program increase of \$46,000 is requested to employ an operations officer for the Office of the Under Secretary and an assistant to the Assistant Secretary (Public Service) and to provide funds for general operations. An additional \$12,000 are required for necessary pay.

Need for Increase--At the May 1970 meeting of the Board of Regents, the former Assistant Secretary was named to the post of Under Secretary. This was in recognition of the very substantial responsibilities of this office. In order to meet an increasing workload involving Regents matters, construction, legislation, and program and policy matters concerning the entire Institution, additional staff for his office is required. An operations officer is needed to serve in an advisory capacity to the Under Secretary, and be responsible for the direction, coordination, long-range planning, and development of certain of the administrative and central support activities of the Institution, particularly in their service relationships to the museums, galleries, and laboratories. These services include personnel administration, management analysis, procurement, contract administration, property management, buildings management, buildings security, photographic services, and other administrative and technical support units. A position for the operations officer is requested (\$20,000).

An assistant to the Assistant Secretary for Public Service to help plan and produce a range of educational materials is requested also. The Smithsonian has many opportunities to cooperate with private industry and organizations in developing educational materials for the public. These materials include such items as pamphlets and books, construction kits, television programs, recording cassettes for home instruction and mini exhibits. Smithsonian activities that would be involved in these efforts include the Press, the Office of Exhibits, the Elementary and Secondary Education Office, and others, drawing upon the vast subject matter resources of our museums, art galleries, laboratories, and the Zoo. This position would cost \$20,000.

Although the Office of the Secretary has developed a management group responsive to the broad and complex nature of the Smithsonian, it currently has a serious deficiency of funding in other objects of expense to enable it to perform in an effective way. This is a request for essential funds for travel, advisory services, supplies and materials, and basic office equipment and furniture (\$6,000).

OFFICE OF THE GENERAL COUNSEL

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions..	<u>8</u>	<u>1</u>	<u>9</u>
11 Personnel Compensation.....	\$ 121,000	\$ 21,000	\$ 142,000
12 Personnel Benefits.....	10,000	1,000	11,000
21 Travel & Transp. of Persons	1,000		1,000
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction.....			
25 Other Services	1,000		1,000
26 Supplies & Materials	1,000	1,000	2,000
31 Equipment	1,000		1,000
41 Grants			
TOTAL.....	<u>\$ 135,000</u>	<u>\$ 23,000</u>	<u>\$ 158,000</u>

Analysis of Total

Pay Increase	\$8,000	\$ 5,000	\$13,000
Program	\$127,000	\$18,000	\$146,000

Specification of Increase (Program):Legal Counsel Requirements of the Institution (1 position, \$18,000)

The Institution has grown considerably since 1964. There have been added to its already numerous responsibilities the Renwick Gallery, the Hirshhorn Museum and Sculpture Garden, the Cooper-Hewitt Museum, the Archives of American Art, the Chesapeake Bay Center for Environmental Studies, and the Woodrow Wilson International Center for Scholars. It has taken on such program as the National Museum Act and the Foreign Currency Program. Each of these required OGC staff participation in its establishment and each places demands on the staff for its continued development and operation within the framework of applicable laws. There is a growing backlog of matters requiring legal attention. An additional \$18,000 is requested: \$17,000 for an additional part-time attorney and a secretary and \$1,000 for other expenses of the office.

ADMINISTRATIVE AND CENTRAL SUPPORT ACTIVITIES
OFFICE OF THE GENERAL COUNSEL

1970 Actual	\$110,000
1971 Estimate	\$135,000
1972 Estimate	\$158,000

In 1964 the Office of the General Counsel was established, some 118 years after the Institution was founded. Prior to 1964, outside counsel was retained from time to time to handle significant legal matters for the Institution's private side affairs; the Department of Justice handled a few legal suits on the Federal side; and other questions were decided by Smithsonian administrative personnel. However, such a system was inadequate; it failed to provide the continuous legal counsel necessary for consistency in the day-to-day operations of the Institution.

An increase of \$18,000 is requested for staff and other support. A further increase of \$5,000 is requested for necessary pay.

Need for Increase--As a non-Governmental establishment which nevertheless operates in substantial part with appropriated funds, the legal problems of the Institution include those arising from the operations of a private, university-like, charitable corporation, as well as those common to Government organizations. Many otherwise routine matters are complicated by the pervasive necessity to maintain a rational, effective, and legal relationship between these two capacities in which the Institution functions. In addition, the OGC is responsible for the continuous analysis of Congressional activities and legislation and their impact on the Institution, and has a major role in the furtherance of the Smithsonian's own legislative program.

The Institution has grown considerably since 1964. There have been added to its already numerous responsibilities the Renwick Gallery, the Hirshhorn Museum and Sculpture Garden, the Cooper-Hewitt Museum, the Archives of American Art, the Chesapeake Bay Center for Environmental Studies, and the Woodrow Wilson International Center for Scholars. It has taken on such programs as the National Museum Act and the Foreign Currency Program. Each of these required OGC staff participation in its establishment and each places demands on the staff for its continued development and operation within the framework of applicable laws.

The Office of the General Counsel has grown from three attorneys in 1964 to four full-time attorneys and two part-time in 1971. During this same period, the Institution's appropriations for salaries and expenses have more than doubled, with a concomitant increase in the workload of this office. This limitation of staff has made it increasingly difficult to meet the rising needs of the Institution and has created a growing backlog of matters on which action has had to be deferred.

At the same time, funds for other objects, which averaged about 4 1/2 percent of salaries in fiscal years 1966 through 1969, have been curtailed to three percent during the last two fiscal years. This has been achieved by funding some necessary travel from sources which will not be available in fiscal year 1972, and by deferring the replacement of essential office equipment, which can no longer be postponed without impairing the quality and efficiency of the services provided by the office.

To help overcome these deficiencies, an increase of \$18,000 is requested: \$17,000 for an additional part-time attorney and a secretary, and \$1,000 for other expenses of the office.

OFFICE OF THE TREASURER

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>31</u>	<u>2</u>	<u>33</u>
11 Personnel Compensation....	\$ 331,000	\$ 28,000	\$ 359,000
12 Personnel Benefits.....	26,000	3,000	29,000
21 Travel & Transp. of Persons	2,000	0	2,000
22 Transportation of Things			
23 Rent, Comm. & Utilities	192,000	20,000	212,000
24 Printing & Reproduction.....			
25 Other Services	37,000	10,000	47,000
26 Supplies & Materials	14,000	7,000	21,000
31 Equipment	2,000	0	2,000
41 Grants			
TOTAL.....	<u>\$ 604,000</u>	<u>\$ 68,000</u>	<u>\$ 672,000</u>

Analysis of Total

Pay Increase	\$22,000	\$13,000	\$35,000
Program	\$582,000	\$55,000	\$637,000

Specification of Increase (Program):Accounting, Budgeting, Financial Reporting, and Postage Requirements
(2 positions, \$55,000)

The Office of the Treasurer provides comprehensive financial management assistance and technical services to the Smithsonian. This includes financial planning, budgeting, accounting, contracts administration, and reporting. An increase of two employees and funds to meet Institutional needs are requested. A systems accountant is required to continually review and improve the Institution's accounting procedures and records to keep them responsive to needs. A budget technician is required to assist the three budget analysts in a wide variety of data gathering and summarizing assignments. These two positions would cost \$18,000. An additional \$17,000 are needed for forms and computer services used in financial reporting to the museums, galleries, research laboratories, and other units. Under recent postal reform legislation, a near future substantial increase in postal rates is anticipated. An additional \$20,000 are requested for postage indicia.

ADMINISTRATIVE AND CENTRAL SUPPORT ACTIVITIES
OFFICE OF THE TREASURER

1970 Actual.....	\$573,000
1971 Estimate.....	\$604,000
1972 Estimate.....	\$672,000

This office provides financial management assistance and technical services to the Smithsonian. It is composed of the Treasurer's immediate office, the Office of Programming and Budget, and the Accounting Division. Financial planning, budgeting, accounting, contracts administration, and reporting are the responsibilities of these several units.

An increase of \$55,000 is requested to strengthen the budgeting and accounting functions, to provide forms and computer services required in financial reporting, and to meet anticipated higher postage indicia costs. Funding of \$13,000 is required also for necessary pay.

Need for Increase--Selective staff increases and funds for program improvement are required in order that the Office of the Treasurer can provide responsive services to the Smithsonian's museums, galleries, research laboratories, and to the other organization units that are themselves providing similar technical support in the way of personnel management, buildings management, and other services. The diversity of the Smithsonian's operations and geographic distribution, and the variety of funding sources for its programs pose unusual demands of financial management services. The effectiveness and efficiency with which the program offices carry out their assigned research, curation, exhibit, and other public services depend in large measure on the accuracy and timeliness of good financial information.

Two additional employees are required: a systems accountant and a budget technician. The systems accountant would assist in the design, adaptation, installation, evaluation, and updating of the Institution's accounting systems, including reports, records control devices, and related procedures. There are at present three budget analysts responsible for agency-level budget planning, formulation and execution including the year-round job of review and monitoring of obligations and outlays for some 40 budget line items as well as foreign currency and construction accounts. A budget technician (no such position now exists) is required to assist in a wide variety of data gathering and summarizing assignments. Funding of \$18,000 is requested for these two positions.

Additional funds for forms and computer services are requested for financial reporting to the heads of the Institution's museums, galleries, research laboratories, and the other administrative and central support activities including the Buildings Management Department (\$17,000).

Funding of the Institution's postage indicia requirements is provided centrally from the Office of the Treasurer. Approximately \$165,000 will be spent for this purpose in fiscal year 1971 primarily for first class mail. The U.S. Post Office Department indicates substantially higher postage rates late this fiscal year or early next. Under the recent postal reform legislation, the board of governors are empowered to make an emergency increase in postage rates. An eight-cent first class rate is likely as well as other increases. An additional \$20,000 are requested for postage indicia.

OFFICE OF PERSONNEL ADMINISTRATION AND HEALTH UNITS

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>28</u>	<u>1</u>	<u>29</u>
11 Personnel Compensation.....	\$ 368,000	\$16,000	\$ 384,000
12 Personnel Benefits.....	29,000	2,000	31,000
21 Travel & Transp. of Persons	2,000	0	2,000
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction.....			
25 Other Services	32,000	10,000	42,000
26 Supplies & Materials	1,000	4,000	5,000
31 Equipment			
41 Grants			
TOTAL.....	<u>\$ 432,000</u>	<u>\$ 32,000</u>	<u>\$ 464,000</u>

Analysis of Total

Pay Increase	\$20,000	\$10,000	\$30,000
Program	\$412,000	\$22,000	\$434,000

Specification of Increase (Program):Health Services and Employee Training (1 position, \$22,000)

This Office has responsibility for personnel administration and the operation of health services for visitors and staff. On an annual basis the health units provide about 14,000 treatments. An additional \$12,000 are requested to provide one more nurse position and necessary supplies and equipment to augment the health services provided in the History and Technology Building, the Natural History Building, and the buildings on the south side of the Mall. Similarly, the Smithsonian needs to provide more employee training especially of supervisors and of low-level, low-skill employees. The Office of Personnel Administration has only about \$10,000 available to it for training expenses. An additional \$10,000 are requested.

ADMINISTRATIVE AND CENTRAL SUPPORT ACTIVITIES
OFFICE OF PERSONNEL ADMINISTRATION AND HEALTH UNITS

1970 Actual.....\$388,000
 1971 Estimate.....\$432,000
 1972 Estimate.....\$464,000

This Office has responsibility for personnel administration and the operation of health services. It helps to formulate policy over a wide range of activities from manpower planning and managerial development, through employee training, performance evaluation, and labor relations. These programs generally fall into six broad categories; the table below indicates the nature of these endeavors with estimated man-years and expenditures for fiscal year 1970.

Activity	Effort and Dollars	
	FY 1970	
Manpower and Organization	.75 man years	\$ 12,000
Career Development	2.75 "	40,000
Management and Personnel Consulting	9.00 "	153,000
Technical and Administrative Support	5.00 "	34,000
Health Services	3.50 "	51,000
Recruitment and Placement	2.00 "	29,000
Admin. and Direction	3.50 "	69,000
	26.50 man years	\$388,000

Annual reports indicate that over the last few years the number of actions handled on a yearly basis by the staff has grown to 72,000. This is a sizable workload. The ratio of staffing for carrying out personnel office functions is one personnel employee per 125 employees serviced. While no fixed standard has been developed, this is considerably higher than comparable government agencies which average approximately one personnel employee per 80 employees serviced.

The requested program increase of \$22,000 will be used to correct shortages in the areas of health services and employee training. An additional \$10,000 are required for necessary pay purposes.

Need for Increase--The health units provide services to Smithsonian Institution employees as well as to visitors and tourists. On an annual basis, these units provide about 14,000 treatments to tourists and staff. This figure has been steadily increasing over the years. There is a critical need to improve and increase the availability of these services in the History and Technology Building, the Natural History Building, and the buildings on the south side of the Mall. An amount of \$12,000 is requested for an additional nursing position plus necessary supplies and equipment.

The Smithsonian has been administering an austere program of employee training. In fiscal year 1970, the amount spent by the Office on training was approximately \$10,000, yet the needs for training have been steadily mounting. Additional funding is required just to meet programs of special emphasis with the Administration. For example, the Civil Service Commission recently has required specially tailored training for first-level supervisors. In the near future, the CSC will issue strong recommendations that equivalent training be provided for all supervisors. There are more than 400 supervisors currently in the Institution. A second area of emphasis is training for supervisors and managers in labor-management relations. A third area is "upward mobility". The present Administration is putting much emphasis on the Public Service Careers Program and other programs to provide training for low-level, low-skill individuals who are currently Federal employees. The Institution has at present more than 600 employees in the latter category, i.e., GS-5 and below and WG-5 and below. The Institution has at present no programs in the second and third areas, and only minimal programs in supervisory training. For these reasons an additional \$10,000 are being requested to strengthen training programs.

SMITHSONIAN INSTITUTION LIBRARIES

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions . .	<u>54</u>	<u>9</u>	<u>63</u>
11 Personnel Compensation	\$ 600,000	\$ 74,000	\$ 674,000
12 Personnel Benefits	47,000	6,000	53,000
21 Travel & Transp. of Persons . .	6,000	2,000	8,000
22 Transportation of Things	1,000	1,000	2,000
23 Rent, Comm. & Utilities	2,000	2,000	4,000
24 Printing & Reproduction	10,000	20,000	30,000
25 Other Services	15,000	23,000	38,000
26 Supplies & Materials	51,000	33,000	84,000
31 Equipment	7,000	50,000	57,000
41 Grants			
TOTAL	<u>\$ 739,000</u>	<u>\$ 211,000</u>	<u>\$ 950,000</u>

Analysis of Total

Pay Increase	\$ 24,000	\$ 21,000	\$ 45,000
Program	\$715,000	\$190,000	\$905,000

Specification of Increase (Program):Correction of Shortages and Continued Modernization (9 positions, \$190,000)

Although the Smithsonian will continue to use the resources of other libraries through interlibrary loans and other ways, the availability of adequate in-house library materials and reference services is essential to the effective performance of the Institution's curation, exhibition, and research functions. Presently, the Smithsonian Libraries are not meeting several staff needs. The request for fiscal year 1972 is meant to partially offset a variety of deficiencies such as in purchase funds (\$65,000), development of automated library techniques (\$20,000), materials preservation (\$22,000), and supplies and equipment (\$24,000). Nine additional positions are requested. A librarian and two clerks will provide service to museums and galleries that are unserved by the General Library (\$20,000). One cataloger and one technician will be used to create a core speed cataloging team to reduce the time of processing new materials (\$15,000). A cataloger and a technician will also be utilized to organize and inventory the collections housed at the Lamont Street center (\$14,000). In addition, one technician and one aid are necessary to begin to edit the holdings of the Institution's union catalog (\$10,000).

ADMINISTRATIVE AND CENTRAL SUPPORT ACTIVITIES
SMITHSONIAN INSTITUTION LIBRARIES

1970 Actual \$659,000
 1971 Estimate \$739,000
 1972 Estimate \$950,000

The Smithsonian Institution Libraries provide reference and information services in support of the research and educational programs of the professional staff of the Institution. Basic library resources consist of about 750,000 volumes in the working collections of the Institution. The Smithsonian Institution's library program has the following basic purposes: (a) to have at hand carefully selected documentary materials containing the best and most pertinent data and results from research done elsewhere that has a direct bearing on our own investigations; (b) to arrange and index the information in ways that make it readily accessible; and (c) to provide reference and information services based on this material and related material in other libraries' collections, under terms and conditions that advance research in the Smithsonian. It is logical and prudent to have an information capability such as this as an adjunct to our research effort. In this manner, we speed up our own research effort and make it more efficient by avoiding costly and unnecessary duplication of research.

An increase of \$190,000 is requested to correct shortages in the Libraries' basic program of support to the research efforts of the Smithsonian, and to continue to modernize operations and services to the scientific and curatorial staff of the various museums and galleries. In addition, \$21,000 are being sought to help meet necessary pay increases.

Need for Increase--The Smithsonian has embarked on a program of modernization of its library services. The following table contains information covering the requested additional amount of \$190,000 for 1972 to implement the current phase of this program. The Libraries are being changed from a congeries of

Table 1: Indicates Needs for FY 1972

	<u>1971</u> <u>Base</u>	<u>1972</u> <u>Need</u>	<u>Requested</u> <u>Increase</u>
Positions	54	63	9
Personnel costs, including salaries, benefits, training, and travel	\$647,000	\$727,000 ^a	\$ 80,000 ^a
Information resources (e.g., books, journals, documents, microfilm)...	52,000	117,000	65,000
Communications equipment and services (e.g., facsimile, special mail, and transportation).....	5,000	8,000	3,000
Materials preservation (current input)	7,000	29,000	22,000
Supplies, equipment, and maintenance	16,000	37,000	21,000
Automation and data processing	12,000	32,000	20,000
Total	<u>\$739,000</u>	<u>\$956,000^a</u>	<u>\$211,000^a</u>

^a Includes \$21,000 for necessary pay increases.

widely dispersed collections in a vast array of subjects in art, the sciences, and the social sciences, into an integrated resource. Integration will be achieved through improved indexing, search and retrieval mechanisms, involving both improved manual and new computer methods, and through consolidation of several

related smaller collections into more serviceable units. Information services are to be upgraded, based on recently developed methods of information science. Further, the collections that hitherto chiefly served discipline-based curatorial and related research are being broadened to provide a base for information services for research in the newer interdisciplinary aspects of science, sociology, and culture.

Of the more than 385,000 books and uncounted tens of thousands of reports and research documents produced throughout the world each year, it is estimated that the Institution must purchase about 18,000 titles in order to maintain information services that are sufficiently well founded to be useful. This is a modest rate of acquisition. Currently, the Libraries are about \$125,000 short of funds for the purchase of library materials. The effects of inflation over the last few years have severely eroded the ability of the Libraries to purchase new materials particularly in subject areas of most concern to the Institution. While selected price indices, using 1957-59 as base years are presented in Table 2, much of the recorded increase has occurred in the last five years.

Table 2

Recent Price Indices: Periodicals in Subject Areas
of Institutional Interest, and Selected Hardcover Books

	1970 Index (1957-59 = 100)
Subject Areas	
Chemistry and Physics	265
Fine and Applied Arts	154
History	143
Mathematics, Botany, Geology, and General Science	267
Sociology and Anthropology	156
Zoology	176
	1969 Index (1957-59 = 100)
Selected Hardcover Books	177

Source: "Price Indexes for 1970," Library Journal
(July 1970), 2427, 2428, and Publishers Weekly
(February 9, 1970), 49.

The Libraries also are \$200,000 short in funds for the application of modern indexing and retrieval techniques to operate this essential service. Also required are about \$50,000 per year for binding and filming of materials for preservation. As indicated in Table 1, the requested increase will be applied to partially offset these and other pressing needs. The requested staff increase of nine positions would be utilized as follows:

To create a team of information service people to provide reference and collection management services at least ten hours a week in each of the unstaffed bureau branches that are now unserved by the General Library (principally the National Air and Space Museum, Radiation Biology Laboratory, Museum of Natural History, Armed Forces Museum Advisory Board, and Museum Services); one professional librarian, two library clerks \$20,000

To organize a speed cataloging team for rapid processing of priority materials. This is a move to reduce the average time of processing of new materials in cataloging, aiming at a goal of six weeks' lapsed time; one cataloger and one library technician \$15,000

To organize and inventory those parts of the consolidated collections now housed at the Smithsonian Institution Libraries Center at Lamont Street (estimated to be a three-year project); one cataloger and one library technician 14,000

To edit the Institution's union catalog of its holdings, particularly to rationalize conflicts in entry and to provide entries for new subject interests among research projects; one library technician and one library aid 10,000

In 1970 the Libraries acquired 3,974 titles (books, journals, and documents) by purchase, and 12,194 titles through gifts and exchanges. The Libraries cataloged 8,158 of these for addition to the collections. This record of accomplishment is offset by severe shortages in every category of service. One quarter of the titles circulated to the professional staff of the Institution in 1969 were not in the Smithsonian's collections and had to be borrowed from other libraries, principally the over-burdened Library of Congress. The 8,010 uncataloged and unindexed items considered pertinent to the work of the Smithsonian acquired in 1969 were added to the existing backlog of 59,000 uncataloged titles remaining from other years. The delays in organizing this material for use have grown to several man-years. Of nineteen major bureaus and offices of the Smithsonian, eight are completely without local service, except as provided by the Libraries' small Central Reference and Circulation staff.

SMITHSONIAN INSTITUTION PRESS

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions . .	<u>25</u>	<u>0</u>	<u>25</u>
11 Personnel Compensation	\$319,000	\$10,000	\$329,000
12 Personnel Benefits	24,000	1,000	25,000
21 Travel & Transp. of Persons	3,000	0	3,000
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction	352,000	40,000	392,000
25 Other Services	5,000	0	5,000
26 Supplies & Materials	2,000	0	2,000
31 Equipment	2,000	0	2,000
41 Grants			
TOTAL	<u>\$707,000</u>	<u>\$51,000</u>	<u>\$758,000</u>

Analysis of Total

Pay Increase	\$ 18,000	\$11,000	\$ 29,000
Program	\$689,000	\$40,000	\$729,000

Specification of Increase (Program):Research Manuscript Printing (\$40,000)

An additional \$40,000 of printing funds are required to reduce a growing backlog of research manuscripts in science and history ready for printing. At the close of fiscal year 1970, 19 major manuscripts could not be printed for lack of funds. Investments in research are wasted unless the results are published on a timely basis.

ADMINISTRATIVE AND CENTRAL SUPPORT ACTIVITIES
SMITHSONIAN INSTITUTION PRESS

1970 Actual	\$700,000
1971 Estimate	\$707,000
1972 Estimate	\$758,000

For a century and a quarter, the Institution has achieved the diffusion of research knowledge principally through the Smithsonian Press. Most of the Press publication activity is considered as a fundamental extension of the basic research programs of the Smithsonian's museums and research laboratories. The Smithsonian Press also produces and distributes museum guides, exhibit catalogs, and information leaflets. This is an extension of another basic Smithsonian program, public education. Finally, the Press also furnishes the Institution with a variety of internal manuals, reports, specimen labels, and directories. A recent analysis of Press operations reveals that about 70 percent of Press efforts are spent directly on research publications, 20 percent on public education, and the balance on administrative support.

Additional funding of \$40,000 is requested for research publication printing. Funding of \$11,000 for necessary pay also is required.

Need for Increase--Currently, about one hundred research publications a year appear in eight active series in the fields of anthropology, astrophysics, biology, geology, history, and technology. This represents the extent of the Press' current funding capacity for this portion of overall activity and not what could have been published. There has accumulated over the last few years a substantial backlog of research publications generated by Smithsonian scientists and historians. At the close of fiscal year 1970, 19 major manuscripts ready for publication, with estimated printing costs of \$32,000, were withheld from the Government Printing Office because funds were not available. The situation will only worsen in fiscal years 1971 and 1972 since it is virtually certain that the research output of the professional staff will exceed the ability of the Press to fund the publishable reports. The Smithsonian is basically a research institution and support of that research is wasted unless reported on a timely basis to national users. An additional \$40,000 are requested for research publication printing.

INFORMATION SYSTEMS DIVISION

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>14</u>	<u>2</u>	<u>16</u>
11 Personnel Compensation.....	\$ 175,000	\$ 37,000	\$ 212,000
12 Personnel Benefits.....	14,000	2,000	16,000
21 Travel & Transp. of Persons	4,000	1,000	5,000
22 Transportation of Things			
23 Rent, Comm. & Utilities	10,000	0	10,000
24 Printing & Reproduction.....			
25 Other Services	11,000	18,000	29,000
26 Supplies & Materials	2,000	0	2,000
31 Equipment	3,000	0	3,000
41 Grants			
TOTAL.....	<u>\$ 219,000</u>	<u>\$ 58,000</u>	<u>\$ 277,000</u>

Analysis of Total

Pay Increase	\$ 12,000	\$ 8,000	\$ 20,000
Program	\$207,000	\$50,000	\$257,000

Specification of Increase (Program):Application of Electronic Data Processing to Smithsonian Requirements
(2 positions, \$50,000)

The Smithsonian, through the work of its museums and research laboratories, is basically an information producer and distributor. Throughout the Institution firm requirements have been identified for the application of electronic data processing to the task of storing, arranging, and reporting data associated with collections and other research. This requirement is especially acute in the National Museum of Natural History but virtually all of our science, history, and art activities have such needs. An illustration in our budget request shows how data related to the collections can be reported for medical research use. For fiscal year 1972, two additional computer specialists are required (\$31,000) with funds for computer services and other support (\$19,000).

ADMINISTRATIVE AND CENTRAL SUPPORT ACTIVITIES
INFORMATION SYSTEMS DIVISION

1970 Actual.....\$217,000
 1971 Estimate.....\$219,000
 1972 Estimate.....\$277,000

The Information Systems Division was established in 1966 in response to a growing awareness that the Institution had to take advantage of computer technology not only in its management areas but to gain access to masses of research data and information associated with its collections. Currently, the Division is comprised of an information retrieval section, a mathematical computation section, a software and maintenance section, and a management systems section. While much of the Division's efforts are currently devoted to administrative and management support functions, in future years attention will be concentrated increasingly on research support and the retrieval of information from the National Collections. Some 350 specific and 50 general computer programs have been developed and much of the time of current staff must go to maintenance and updating. An illustration of the Division's output in support of research and collections management is shown on a following page. Current program shortages include the following, for which a program increase of \$50,000 is requested. An additional \$8,000 are required for necessary pay.

Need for Increase--The Division is not yet able to meet Institution needs in the management systems area. It is utilizing its present capacity in this area developing and installing new systems for library acquisitions and search, fiscal accounting, personnel administration, buildings management work planning and control, and for property management. These systems are only in initial or intermediate stages of development, and a particularly large increase in actual systems implementation and programming time is required to meet the anticipated workload in fiscal year 1972.

For several years (largely with grant funds which are no longer available) the Institution has been exploring and developing automated methods for capturing natural history collection information in order to make measurements of long term environmental change associated with artifact and specimen characteristics useful for controlled research purposes. The Institution is considered the pioneer in this area by concerned scientists around the nation. One objective, for example, is to recreate environmental conditions for selected animal species which prevailed during specified periods in history, and then through various analyses to speculate about changes which have occurred or will occur and result in contemporary population, distribution, and survival characteristics. The feasibility and usefulness of automation has been demonstrated to the scientific community by the joint efforts which have taken place to date between the National Museum of Natural History and the Information Systems Division. These pilot projects have concentrated on birds, crustacea, rocks, and minerals. The system must now be gradually extended and implemented through the Museum. Collection information systems are needed elsewhere in the Smithsonian. For instance, in the National Portrait Gallery, the Division is helping to develop a program to permit retrieval of a great variety of research data concerning portraits of distinguished Americans. In the Museum of History and Technology similar systems are needed to assist the curators in cataloging, retrieving, and maintaining their collections.

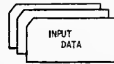
To accommodate these and related needs, two additional computer specialists will be required (\$31,000) along with necessary travel and computer services to support the entire Division (\$19,000).



BIOLOGICAL SPECIMENS



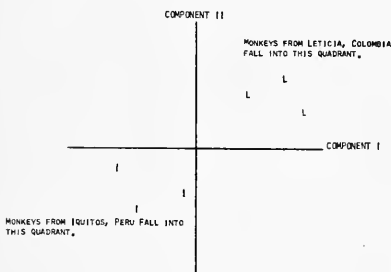
MEASUREMENT AND DATA PREPARATION



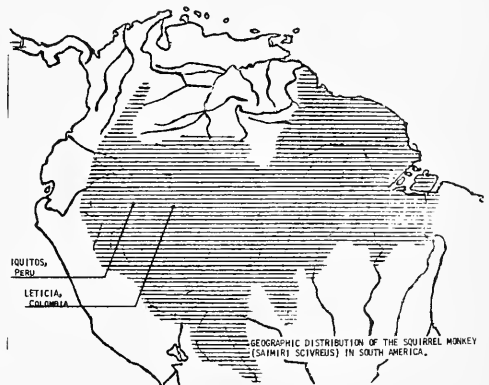
COMPUTERIZED INFORMATION STORAGE, RETRIEVAL AND ANALYSIS



GROUP	MEAN	VARIANCE	STANDARD DEVIATION	STANDARD ERROR	VARIATION COEFF
1	63.5875	2.3657	1.5381	.2432	2.4189
2	35.8900	2.1143	1.4540	.2299	4.0514
3	38.9100	6.6102	2.5710	.4065	6.6076
4	33.7425	1.9343	1.3908	.2199	4.1218
5	29.4675	.5546	.7447	.1177	2.5271
6	18.7925	.5299	.7280	.1151	3.8737
7	15.7050	.4174	.6461	.1022	4.1138
8	18.8300	.6473	.8045	.1272	4.2726
9	19.8675	3.4735	1.8637	.2947	9.3809
10	17.6050	1.0666	1.0328	.1633	5.8864
11	43.7525	2.3744	1.5409	.2436	3.5218
12	63.2225	2.8054	1.6749	.2648	2.6493
13	40.0475	1.3436	1.1591	.1833	2.8944
14	40.3675	.8776	.9368	.1481	2.3207
15	32.5325	.8971	.9472	.1498	2.9114
16	53.4950	2.2251	1.4917	.2359	2.7884
17	28.2350	2.6269	1.6208	.2563	5.7493
18	34.5475	2.5549	1.5984	.2527	4.6267
19	27.5475	3.7508	1.9367	.3062	7.0304



SQUIRREL MONKEYS (SAIMIRI SCIVREUS) FROM IQUITOS, PERU MAY BE DIFFERENTIATED FROM SQUIRREL MONKEYS FROM LETICIA, COLOMBIA BY THE ABOVE GRAPH. COMPONENT I IS BASED ON SKULL LENGTH, OCCIPITAL LENGTH, AND LENGTH OF TOOTH ROW. COMPONENT II IS DETERMINED BY SKULL HEIGHT AND NASTON-BREGMA LENGTH.



The above illustrates how computerization allows Smithsonian scientists to identify animals used in biomedical research more precisely. Retrieved data on external morphology and skull morphology may be subjected to canonical analysis and discriminant function analysis often resulting in a discrimination among groups of animals which yields a better definition of taxonomy and geographic variation. Investigators are concerned about a variety of physiologic and biochemical differences among squirrel monkeys (*Saimiri sciureus*) used in medical research. An analysis of 19 variables has identified those characteristics most useful in discriminating between groups and has demonstrated that squirrel monkeys differ according to the place obtained: Iquitos, Peru or Leticia, Colombia. This task could not readily be accomplished without benefit of the computer system as manifold computations must be made on each of the 19 variables.

SMITHSONIAN ARCHIVES

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>6</u>	<u>0</u>	<u>6</u>
11 Personnel Compensation.....	\$ 50,000	\$ 3,000	\$ 53,000
12 Personnel Benefits.....	4,000	0	4,000
21 Travel & Transp. of Persons	1,000	0	1,000
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction.....			
25 Other Services	3,000	5,000	8,000
26 Supplies & Materials	2,000	0	2,000
31 Equipment	1,000	0	1,000
41 Grants			
TOTAL.....	<u>\$ 61,000</u>	<u>\$ 8,000</u>	<u>\$ 69,000</u>

Analysis of Total

Pay Increase	\$3,000	\$ 3,000	\$6,000
Program	\$58,000	\$ 5,000	\$63,000

Specification of Increase (Program):Microfilming Archival Records (\$5,000)

The Archives maintains records dating from the 1830's on the Smithsonian's history, and makes these available for administrative purposes as well as to scholars studying the history of American science. The requested increase of \$5,000 is aimed at microfilming deteriorating documents for preservation and to make them more accessible to researchers.

ADMINISTRATIVE AND CENTRAL SUPPORT ACTIVITIES
SMITHSONIAN ARCHIVES

1970 Actual.....\$33,000
 1971 Estimate.....\$61,000
 1972 Estimate.....\$69,000

The Smithsonian Archives is both the official memory of the Smithsonian Institution and a valuable research resource for scholars in the history of American science in the 19th century. Exclusive of materials located in the research and curatorial areas of the Smithsonian (which also should be identified and protected), the Archives' current holdings amount to over one million documents from the 1830's to the present. Within available resources, the Archives' staff identifies permanently valuable records throughout the Institution, preserves them for administrative, legal, and fiscal value, and provides service on these records to Smithsonian staff. This constitutes the Archives' management or service function. The Archives also makes available and interprets its holdings to the scholarly community, an activity which makes the greatest demands upon the professional capacity of the staff.

Current resources of staff and funds are distributed approximately equally among the following activities: identifying, selecting, and preserving valuable records; preparing finding aids; and providing reference services. In fiscal year 1970, about one-half of the reference service effort went to student, scholar, and federal agency users.

An increase of \$5,000 is requested for microfilming valuable records. An additional amount of \$3,000 is requested for necessary pay.

Need for Increase--A major current program shortage is the lack of sufficient funds for contract microfilming and supplies. Only about \$3,000 is currently available for this purpose. This requested increase of \$5,000 for fiscal year 1972 is aimed at microfilming deteriorating documents as a preservation function, and to increase the availability of these records to staff and visitors through microfilm medium.

PHOTOGRAPHIC SERVICES DIVISION

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>20</u>	<u>0</u>	<u>20</u>
11 Personnel Compensation....	\$ 211, 000	\$ 8, 000	\$ 219, 000
12 Personnel Benefits.....	17, 000		17, 000
21 Travel & Transp. of Persons			
22 Transportation of Things			
23 Rent, Comm. & Utilities			
24 Printing & Reproduction	10, 000	15, 000	23, 000
25 Other Services	1, 000	0	1, 000
26 Supplies & Materials	13, 000	4, 000	17, 000
31 Equipment	0	3, 000	3, 000
41 Grants			
TOTAL	<u>\$ 252, 000</u>	<u>\$ 28, 000</u>	<u>\$ 280, 000</u>

Analysis of Total

Pay Increase	12, 000	8, 000	20, 000
Program	\$240, 000	\$20, 000	\$260, 000

Specification of Increase (Program):General Photographic Support (\$20, 000)

As a result of a virtually level allotment and some pay cost absorption, funds available for other object classes have decreased over the past several years. Yet the price of films, chemicals, and outside processing has increased 10-15 percent. In addition, many pieces of equipment are 10-12 years old and obsolete or frequently in need of repair. An amount of \$20,000 is requested to purchase supplies, replacement equipment, and specialized processing services.

ADMINISTRATIVE AND CENTRAL SUPPORT ACTIVITIES
PHOTOGRAPHIC SERVICES DIVISION

1970 Actual.....	\$265,000
1971 Estimate.....	\$252,000
1972 Estimate.....	\$280,000

The Smithsonian photographic services are unique in that the Institution's activities require more quality and custom work as compared to the photographic needs of most government agencies. The photographic work is under public scrutiny almost entirely. In view of the importance of photographic services to the entire Institution, the centralized Photographic Services Division was formed to exercise a more stable and positive control over the application of procedures and techniques. It maintains laboratories in three museum buildings.

This Division is charged with supplying all types of photographic and related services that the Smithsonian's museums and research activities may require. This involves filling photographic requests, obtaining outside contractual services, and providing technical assistance and training to Smithsonian staff members. The Division supports programs of research, documentation, and conservation of collections, exhibitions, education, training, publication, and public service.

An increase of \$20,000 is requested to provide for general photographic support. An additional \$8,000 are required for necessary pay.

In the past several years, there have been several Government-wide increases in salaries, resulting in funds being directed from other object classes and used for the payment of salaries and benefits. In fact, funds available for other object classes have decreased from \$52,000 in fiscal year 1968 to \$25,000 in fiscal year 1970. This situation is further aggravated by the fact that the prices of films, chemicals, and processing have increased 10-15 percent during this period. Equipment replacement needs have had to be deferred in order to purchase necessary supplies and materials. Many pieces of equipment are now 10 to 12 years old and obsolete or frequently in need of repair. Outside processing (color work) has been held below minimum needs to compensate for the shift of funds for salaries and benefits. Additional funds in the amount of \$20,000 are urgently needed to purchase supplies, equipment, and specialized processing services.

SUPPLY DIVISION

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
	<u>21</u>	<u>0</u>	<u>21</u>
Number of Permanent Positions ..			
11 Personnel Compensation.....	\$236,000	\$ 7,000	\$243,000
12 Personnel Benefits.....	17,000	1,000	18,000
21 Travel & Transp. of Persons			
22 Transportation of Things			
23 Rent, Comm. & Utilities	8,000	0	8,000
24 Printing & Reproduction.....			
25 Other Services	6,000	3,000	9,000
26 Supplies & Materials	59,000	15,000	74,000
31 Equipment	1,000	2,000	3,000
41 Grants			
TOTAL.....	\$327,000	\$28,000	\$355,000

Analysis of Total

Pay Increase	\$ 10,000	\$ 8,000	\$ 18,000
Program	\$317,000	\$20,000	\$337,000

Specification of Increase (Program):Stockroom Operations (\$20,000)

The growth in research, exhibit, and educational programs has increased demands for stockroom supplies. These commonly used items are centrally bought, stocked, and issued for economy and efficiency. Reserves of many needed items have been depleted, however, and prices continue to rise. An additional \$20,000 are required for stockroom supplies, equipment, and office machine repair services.

ADMINISTRATIVE AND CENTRAL SUPPORT ACTIVITIES
SUPPLY DIVISION

1970 Actual	\$318,000
1971 Estimate	\$327,000
1972 Estimate	\$355,000

The Supply Division procures supplies, materials, contractual services, and equipment for research, curatorial, exhibition preparation, and other Smithsonian activities. It stocks and issues office, laboratory, and other supplies required in daily operations. It operates a property management program, obtaining excess property in lieu of new procurement wherever possible. The Division maintains property records and takes periodic inventories to insure adequate control and utilization of equipment items.

An increase of \$20,000 is required primarily for stockroom operations. An additional \$8,000 are requested for necessary pay.

Need for Increase--The growth in research, exhibit, and educational programs has increased demands for stockroom supplies. For economy and efficiency of purchasing, general supply items are bought centrally and stocked by the Division for issue. The Division has had to reduce its expenditures for supplies in order to absorb part of higher pay costs. About \$76,000 are available in fiscal year 1971 of which about \$18,000 will be used for duplicating supplies. Because of limited funds, the Division has been unable to conduct an orderly planned procurement and stocking program. It has been forced to buy often in small lots, making for uneconomical procurement. To save funds, the inventory has been purged of slow-moving items and specialized items used by only one or a few units. The reserves of many necessary items, however, have been reduced to dangerous levels. Stock prices are rising. An additional \$20,000 are requested for stockroom supplies, equipment, and office machine repair services.

The Division's workload of purchase orders, contracts, imprest fund uses, and other transactions associated with operating funds, foreign currency matters, and construction projects continues to increase. This increase is the result of general expansion and the assignment of major procurements for the National Zoological Park. Although improved methods and techniques (a new procurement manual has been issued recently) will continue to increase productivity, it is anticipated that the procurement workload will outpace available manpower in fiscal year 1972. There is also the problem of adequate control of receiving and prompt delivery services to additional building facilities (for instance, the Renwick Gallery and the new laboratory building for the Radiation Biology Laboratory in Rockville, Maryland). Notwithstanding the foregoing, an increase in personnel is not being requested at this time. Further expansion will require additional personnel.

ADMINISTRATIVE SYSTEMS DIVISION

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>9</u>	<u>0</u>	<u>9</u>
11 Personnel Compensation.....	\$ 117,000	\$ 4,000	\$ 121,000
12 Personnel Benefits.....	9,000	0	9,000
21 Travel & Transp. of Persons	0	0	0
22 Transportation of Things	0	0	0
23 Rent, Comm. & Utilities	0	0	0
24 Printing & Reproduction.....	25,000	7,000	32,000
25 Other Services	1,000	0	1,000
26 Supplies & Materials	4,000	3,000	7,000
31 Equipment	1,000	0	1,000
41 Grants			
TOTAL.....	<u>\$ 157,000</u>	<u>\$ 14,000</u>	<u>\$ 171,000</u>

Analysis of Total

Pay Increase	\$8,000	\$4,000	\$12,000
Program	\$149,000	\$10,000	\$159,000

Specification of Increase (Program):Forms Management Program (\$10,000)

An additional \$10,000 (on a base of approximately \$25,000) is required to purchase a variety of forms for management purposes.

ADMINISTRATIVE AND CENTRAL SUPPORT ACTIVITIES
ADMINISTRATIVE SYSTEMS DIVISION

1970 Actual.....	\$140,000
1971 Estimate.....	\$157,000
1972 Estimate.....	\$171,000

The Administrative Systems Division provides management analysis and system and procedures work in the development of sound business administration and management improvement programs within the Institution. This unit develops organizational, functional, staffing and flow charts, procedural manuals and other administrative issuances, makes studies and special surveys, provides management advisory services, and maintains a forms management program.

A program increase of \$10,000 is requested in order to provide supplies for the forms management program. An additional \$4,000 are required for necessary pay.

Need for Increase--As the complexity of the Institution has increased, the use of forms has increased also. Formerly, the Institution could utilize a relatively small number of simple forms for management and reporting purposes. However, the increase in the number of bureaus and programs of the Smithsonian requires that sophisticated reporting systems, including computer reports, be developed to insure that heads of bureaus and offices as well as other Smithsonian officials receive the information essential for effective management. These new reporting systems use many types of forms in relatively large quantities. Unfortunately, in spite of inflationary increase in the cost of forms, the funds available for their purchases have remained constant at about \$25,000. This has now reached a point where the printing or purchase of many required forms has been deferred due to the lack of funds. An additional \$10,000 are urgently needed for the purchase of forms.

DUPLICATING SECTION

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
	<u>7</u>	<u>0</u>	<u>7</u>
Number of Permanent Positions ..			
11 Personnel Compensation.....	\$ 54,000	\$ 3,000	\$ 57,000
12 Personnel Benefits.....	4,000		4,000
21 Travel & Transp. of Persons			
22 Transportation of Things			7,000
23 Rent, Comm. & Utilities	7,000		
24 Printing & Reproduction.....			
25 Other Services	5,000	0	5,000
26 Supplies & Materials			
31 Equipment	0	15,000	15,000
41 Grants			
TOTAL.....	<u>\$ 70,000</u>	<u>\$ 18,000</u>	<u>\$ 88,000</u>

Analysis of Total

Pay Increase	\$3,000	\$3,000	\$6,000
Program	\$67,000	\$15,000	\$82,000

Specification of Increase (Program):Replacement of Old Equipment (\$15,000)

The Duplicating Section produces a wide range of high quality printed materials for Smithsonian research, curatorial, exhibits, and administrative needs. Much of its current equipment is old and, while well maintained, frequently breaks down. No funds are available for replacements. An amount of \$15,000 is requested to replace a 13-year-old offset press and a platemaker to reproduce materials with greater fidelity.

ADMINISTRATIVE AND CENTRAL SUPPORT ACTIVITIES
DUPLICATING SECTION

1970 Actual	\$83,000
1971 Estimate	\$70,000
1972 Estimate	\$88,000

The Duplicating Section is responsible for producing a wide range of printed materials for the Smithsonian Institution. Included are administrative issuances, news releases and reports, and informational materials produced by the research, curatorial, and exhibits activities.

A program increase of \$15,000 is requested to replace old and obsolete equipment. An additional funding of \$3,000 for necessary pay is required.

Need for Increase--The current budget meets the costs of essential personnel (no staff reductions can be made and meet the workload), some supplies, and essential repairs to existing equipment. No funds are available to purchase replacement equipment. Much of the current equipment is old and while well maintained frequently breaks down. One of the four offset presses is thirteen years old. When out of operation there is a loss of production as well as costly repairs. Funds are requested for a replacement offset press and for a new itek platemaker in order to reproduce photographs and other originals with greater fidelity.

The service furnished by this unit is essential to many of the overall programs of the Smithsonian Institution. The personnel are well qualified to handle this type of work and do an excellent job. Work must be kept at a current level to be of any value to those requiring the work.

OTHER CENTRAL SUPPORT

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions . .	<u>13</u>	<u>0</u>	<u>13</u>
11 Personnel Compensation	\$155,000	\$ 5,000	\$ 160,000
12 Personnel Benefits	14,000		14,000
21 Travel & Transp. of Persons			
22 Transportation of Things			
23 Rent, Comm. & Utilities	5,000	0	5,000
24 Printing & Reproduction			
25 Other Services	2,000	0	2,000
26 Supplies & Materials			
31 Equipment	1,000	0	1,000
41 Grants			
TOTAL	<u>\$ 177,000</u>	<u>\$ 5,000</u>	<u>\$ 182,000</u>

Analysis of Total

Pay Increase	\$8,000	\$5,000	\$13,000
Program	\$169,000	0	\$169,000

Specification of Increase (Program):

No program increase is sought for fiscal year 1972.

ADMINISTRATIVE AND CENTRAL SUPPORT ACTIVITIES
OTHER CENTRAL SUPPORT

1970 Actual.....\$168,000
1971 Estimate.....\$177,000
1972 Estimate.....\$182,000

Included are the activities of the Equal Employment Opportunity Office, the special project involving writing and research efforts associated with producing the Joseph Henry Papers, the Travel Services Office, and the record keeping duties of the Secretary's Files. No increases are being sought for these activities other than necessary pay (\$5,000).

BUILDINGS MANAGEMENT DEPARTMENT

<u>Object Class</u>	<u>1971 Base</u>	<u>Increase Requested</u>	<u>1972 Estimate</u>
Number of Permanent Positions ..	<u>768</u>	<u>25</u>	<u>793</u>
11 Personnel Compensation.....	\$6,032,000	\$504,000	\$6,536,000
12 Personnel Benefits.....	453,000	40,000	493,000
21 Travel & Transp. of Persons	3,000	0	3,000
22 Transportation of Things			
23 Rent, Comm. & Utilities	1,425,000	168,000	1,593,000
24 Printing & Reproduction.....			
25 Other Services	1,033,000	45,000	1,078,000
26 Supplies & Materials	275,000	40,000	315,000
31 Equipment	50,000	10,000	60,000
41 Grants			
TOTAL.....	<u>\$9,271,000</u>	<u>\$807,000</u>	<u>\$10,078,000</u>

Analysis of Total

Pay Increase	\$606,000	\$382,000	\$988,000
Program	\$8,665,000	\$425,000	\$9,090,000

Specification of Increase (Program):Renwick Gallery (25 positions, \$195,000)

The Gallery will be undergoing exhibit preparation in early fiscal year 1972, and is now scheduled for public opening in the fall of 1971. Additional security and maintenance personnel are needed for the Gallery operations. Twenty-five positions (17 guards, five custodial employees, and three mechanics) and personnel funding (\$162,000) are requested. Support funding for related maintenance expenses such as supplies, communications, materials, and equipment are also requested (\$33,000).

Other Institutional Maintenance (\$230,000)

Because of inflationary costs and greater utilization of facilities, an additional \$230,000 are sought for utility and related expenses in all other buildings of the Institution.

BUILDINGS MANAGEMENT DEPARTMENT

1970 Actual.....	\$ 8,067,000
1971 Estimate.....	\$ 9,271,000
1972 Estimate.....	\$10,078,000

The Buildings Management Department provides essential services to the program units and helps them accomplish the Institution's important goals. These responsibilities include the protection, operation, and maintenance of eight major buildings. These include the original Smithsonian Institution Building, the History and Technology Building, the Natural History Building, the Arts and Industries Building, the Freer Gallery of Art, the National Air and Space Building, the Fine Arts and Portrait Galleries Building (housing the National Portrait Gallery and the National Collection of Fine Arts), and the Renwick Gallery. The Department performs various combinations of these functions for nine other research, collection, special purpose, and support facilities, including the Chesapeake Bay Center for Environmental Studies, the Oceanographic Sorting Center, the Belmont Conference Center, and the Silver Hill facility (which provides for the restoration and preservation activities of the National Air and Space Museum, and houses reference collections of aircraft, and other objects of science, technology, art, and natural history). The total floor space of all the Smithsonian buildings is 3,300,000 square feet, and includes exhibition and public areas, research laboratories, reference collection areas, libraries, offices, and supporting facilities located at 17 different sites in the Metropolitan Area.

This Department provides utilities (electricity, steam, gas, water, and compressed air), including servicing, repairing, and operating the refrigeration, heating, temperature and humidity control systems, and related machinery and accessories. It furnishes transportation and communications, performs repairs, improvements, and alterations to the buildings. Among the Department's responsibilities are the safety, physical security, and disaster programs, as well as engineering and architectural services, construction management, space management, feasibility studies, and professional services.

A program increase of 25 positions and \$425,000 are required in fiscal year 1972 to provide basic services to the Renwick Gallery; and to meet increased costs of utilities, communications, contract work, supplies and materials, and equipment for all of the buildings. An additional \$382,000 are requested for mandatory increases in pay and benefits.

Need for Increase

1. The Renwick Gallery. Located at 17th Street and Pennsylvania Avenue, the Renwick was turned over to the Smithsonian Institution in February 1969, and extensive and essential restoration and renovation work remained to be done in succeeding fiscal years. The Buildings Management Department has been providing basic protection to the building and its contents, and other services such as heating, air conditioning, and the humidity control systems. This is done on a 24-hour basis, seven days a week. Fiscal year 1971 costs will be approximately \$125,000.

The Gallery will be undergoing exhibit preparation beginning in early fiscal 1972, and is now scheduled for opening to the public in the fall of 1971. The additional positions required to provide adequate staffing for fiscal 1972 include 17 guards, five custodial employees, and three mechanics (electrician, painter, and carpenter). In addition to \$162,000 for personnel costs, funds are also requested for related expenses such as communications, supplies, materials, and equipment to support these necessary functions (\$33,000). This is a requested total increase of \$195,000 for building operation costs of this significant additional Institutional facility.

2. Other Institutional Maintenance. An increase of \$230,000 is required to meet the following known additional utility and related expenses:

--\$138,000 to meet an approximate 11.5 percent increase in the cost of electricity over the last two fiscal years.

--\$35,000 for contract services (\$20,000 for contract services for the removal of trash and debris resulting from higher labor costs; \$15,000 to fund the increased cost of miscellaneous contract work for such items as laundry, cleaning and repair of uniforms, and rodent control).

--\$30,000 to meet the increasing costs of supplies and materials (this estimate is based on an average increase of 12 percent to 15 percent for essential supplies and materials for the maintenance, operation, and protection of all the Smithsonian buildings).

--\$20,000 to meet the increasing costs for communications (of this amount \$16,000 are needed for the Federal Telecommunications System intercity telephone services as projected by the General Services Administration).

--\$7,000 to meet the increasing costs for equipment (cost increases averaged 12 percent to 15 percent during the past fiscal year).

The cost of electricity, steam, and communications for all Smithsonian buildings and activities continues to increase along with an upward trend in consumption as indicated in the following table.

Type of Expense	1969	1970	1971 Est.	1972 Est.
Electricity	\$595,000	\$650,000	\$685,000	\$823,000
Communications	235,000	268,000	288,000	318,000
Steam	322,000	372,000	425,000	425,000
Gas	31,000	25,000	29,000	29,000
	<u>1,183,000</u>	<u>1,315,000</u>	<u>1,427,000</u>	<u>1,595,000</u>

In a four-year period, the cost of Institutional utilities has increased by approximately 35 percent (or an average rate of 12 percent per year) with no prospect of this trend diminishing. For example, the General Services Administration has increased the price of steam about 19 percent this fiscal year.

Although higher consumption and increased costs reflect some growth in building areas, to a substantial degree they result from the fact that Smithsonian buildings and museum operations are not normal office-type activities. Air conditioning, heating, and lighting must be provided for the comfort of approximately 14,000,000 visitors during day and evening hours. Many activities are continuous, such as operating engineers being available seven days a week, 24-hours a day, for maintaining environmental control systems. Continuous operations are absolutely essential in many phases of the Department for the conservation and preservation of the National Collections. Supporting services must be provided not only during the normal hours, but also for Institutional activities in the evenings, weekends, and holidays. Peak workload periods are during the spring and summer months when the museum and gallery exhibitions are open until 9:00 p.m.

The mechanical services employees are also responsible for inspecting, servicing, repairing, and operating the 9,850-ton capacity environmental control equipment. This is a complex and intricate system of machinery used for air conditioning, refrigeration, heating, and humidity control purposes. In addition to price increases, the capacity of this machinery has increased five percent in

the last year. The volume and complexity of work orders for mechanical trades assistance continue to grow and to place heavy demands on this Department as indicated below:

<u>Fiscal Year</u>	<u>Work Orders</u>
1969	8,180
1970	9,500
1971	10,500 est.
1972	11,000 est.

These work orders represent a broad range of assistance and support to such activities as exhibitions in history, science and the arts, educational and research programs, and increased use of all buildings, grounds, and facilities by the visiting public.

Building services employees give support to the many programs of the Smithsonian including moving collections and objects, and cleaning exhibit areas, research laboratories, offices, shops, and several public lounges. Employees are also responsible for motor vehicle services, switchboard operation, checkroom services, office moves, and operation of the Institution's 55 elevators.

Over the past several years adequate protection of the visitors to our museums and art galleries has become increasingly complex. The design of exhibit halls and configuration of space requires effective protection. Many more exhibits are being designed to permit the public to view the objects without the intrusion of protective devices such as enclosures and cases. The National Collections must be given maximum protection against loss through arson, theft or vandalism. There has been no significant decrease in the number of such incidents (211 in fiscal 1969; 205 in fiscal 1970). The recently established special salary rate for guard positions will aid in recruiting and retaining qualified guards. The rates are more commensurate with the responsibilities of these positions.

The scope and complexity of the activities of the Buildings Management Department require continuing management improvement efforts and cost reduction programs to ensure that a maximum quality of service is provided with available funds. In recognition of this need, a study by a reputable management consultant firm has been made regarding the organizational structure, financial management, and work control systems of the Department. Several of the recommendations in this study are in the process of implementation. For example, work standards are being developed and implemented, and an inventory control unit has been established. A work control unit has been initiated to plan, estimate, and schedule all major work requests. This will ensure that the preventive maintenance program for plant equipment and buildings is conducted effectively and at minimum cost.

ANTICIPATED SUPPLEMENTAL: PAY INCREASES

Senator BIBLE. There will be submitted a supplemental request in the amount of \$1,630,000. What is the status of that supplemental request? Where is it now?

Dr. RIPLEY. That is still pending in the Office of Management and Budget, Mr. Chairman.

Senator BIBLE. Supplemental for what purpose, pay and salary increases?

Dr. RIPLEY. Yes, salary and pay increases.

Senator BIBLE. To satisfy you to June 30?

Dr. RIPLEY. Yes.

PREPARED STATEMENT

Senator BIBLE. Your full statement will be made a part of the record, and you may highlight it.

(The statement follows:)

Mr. Chairman and Members of the Committee.

It is a pleasure to appear again before this Committee to review the Smithsonian Institution's accomplishments over the past year and to enlist your continued interest in and support of our programs. This coming August will mark the 125th birthday of the Institution. We are enthusiastic about the future and confident that our continued efforts at increasing and diffusing knowledge will result in contributions to the Nation as significant as those in the past.

Notable Events of the Past Year

There have been many notable events and achievements during the past year which I would like to summarize briefly for the record.

-- Visitor attendance to the buildings on and in the vicinity of the Mall increased by approximately 3,200,000 persons in fiscal year 1970 over the previous year, from 10,400,000 to 13,600,000. Through February of this fiscal year we have had 8,024,000 visitors, slightly ahead of last year's pace. An additional 50 thousand persons visit the Anacostia Neighborhood Museum and approximately 5 million come to the National Zoological Park each year. This use testifies to the growing interest in all public

institutions as educational and cultural resources.

- Construction of the Joseph H. Hirshhorn Museum and Sculpture Garden began in March 1970. As of now, the ground floor slab is 75 percent complete, the foundation walls are complete, and the Mall level slab is 30 percent finished. We project that the building will be ready for occupancy in the fall of 1972, with a public opening to follow within six to nine months.
- Also in April 1970, the first issue of the Smithsonian magazine appeared. We now have some 230,000 associate members and are very pleased by this new capability to diffuse knowledge. As Joseph Henry, the first Secretary of the Smithsonian, stated in 1852, "The worth and importance of the Institution are not to be estimated by what it accumulates within the walls of its building[s], but by what it sends forth to the world."
- A special word should be said about the coming to the Smithsonian of the Archives of American Art in May 1970. This extraordinarily important archival resource will strengthen our position as a leading national center for the study of American art and civilization.
- More than 750,000 persons were drawn to the Mall during the five-day period including the Fourth of July to participate in the annual Festival of American Folklife. At the Festival 350 craftsmen and musicians demonstrated the survival of America's cultural heritage. Although drawing participants from many states, each year we highlight one or more regions--Pennsylvania in 1969, Arkansas in 1970, and Ohio and the Indians of the Pacific Northwest this coming summer.

- With funds appropriated to the Institution we have initiated a special interbureau program pointing toward the celebration of the American Revolution Bicentennial in 1976 and a reappraisal of our national experiences. We have a similar Institution-wide effort underway to develop long-range ecological assessments critical to improving man's understanding of the physical and biological environment upon which human society depends.
- The current and growing concern for the safety of the food we eat has, as in so many cases in the past, led scientists to the collections in the National Museum of Natural History for clues to the answers which are being sought. The determination of the levels of mercury found in seafood products is a good example of the service which our staff is able to render. Analysis of specimens in our collections shows that as far back as 1878 tuna contained levels of mercury similar to those discovered recently in canned fish which were subsequently withdrawn from the market. Specimens of tuna from the Gulf of Mexico and the Atlantic and Pacific Oceans taken as far back as 80 to 90 years ago show concentrations of methylmercury ranging from 0.04 to 0.64 parts per million. As you are aware, the present safety guideline established by the FDA is 0.5 ppm and seafood containing a higher concentration is deemed unsafe for human consumption.

DDT had long been suspected as exerting a harmful effect on the reproduction of birds. Recent studies on specimens in the National Museum of Natural History have confirmed this suspicion. A comparison of pre-pesticide birds' eggs with eggs of the same species of birds today shows a dramatic reduction in

shell thickness. This increased fragility results in breakage of eggs during incubation and, of course, a lower reproduction rate. One species thus seriously affected of great concern to biologists is the fish eating hawk, the Osprey. Specimen Osprey eggs in the Museum's collections, some of which date back as far as 100 years, demonstrate convincingly this change in shell thickness.

- We are proud of the initiation during the past year of the first programs for the Woodrow Wilson International Center for Scholars. The opening in October 1970 of fellowship and guest scholar programs is a further realization of the Smithsonian's traditional international role. President Nixon and Senator Humphrey, the Chairman of the Center's Board of Trustees, honored us by dedicating the Center on February 18, 1971.
- The Encyclopaedia of North American Indians is well along toward development. Planning has been completed, writing assignments have been partially made, and we are very optimistic that this comprehensive set of standard reference works will be published by July 1976 as part of the Institution's contribution to the American Revolution Bicentennial.
- Public Law 91-629, approved December 31, 1970, reauthorized appropriations for the National Museum Act in the amount of \$1,000,000 each year, a portion of which would be made available by the Smithsonian to the National Endowment for the Arts and the National Endowment for the Humanities. This funding for training, conservation, and exhibits techniques is essential if the nation's museums, now being visited by perhaps as many as 700 million persons a year, are to continue to offer educational and cultural opportunities.

- Recently, we were pleased to announce the selection of a Director for our National Air and Space Museum after a long and intensive search. Astronaut Michael Collins will join our staff on about April 12th and immediately begin to help us develop our plans for the future.
- Radio astronomers at the Smithsonian Astrophysical Observatory, coordinating research in the laboratory and at the telescope, have recently observed in space such surprising substances as methanol (wood alcohol) and formic acid (the agent that makes an ant bite painful) and are searching for still more complex molecules such as amino acids which are the building blocks of life.
- On April 6, 1971, we will open a major exhibition in the National Museum of History and Technology featuring the music-making machines that have revolutionized the performance, reproduction, and dissemination of music in America. This will be an additional attraction for the more than 5 million persons who visit this Museum each year.

These are but a few of the highlights of our activities during the past 12 months. Many more have been described in the recently issued Smithsonian Year, copies of which have been given wide distribution. We might add that this annual report has been revised and streamlined to make it a more useful document and to reduce the very substantial printing costs of previous editions.

Plans for the Future

I would now like to identify in a summary way our ten major objectives and guiding principles for the next several years. Additional

details on our plans and requirements that will help us realize these objectives have been stated in our budget estimates and will be discussed during the course of the hearing.

One

The central concerns of the Smithsonian represent national needs for the kind of sustained commitment that can be made only by an institution with a strong sense of continuity, tradition, and concentrated purpose. We believe that our first responsibility is to continue the general lines of endeavor that have marked the past 125 years: basic research in selected areas of national interest; development and maintenance of the National Collections in science, history, and in the arts; and education of the public through exhibitions, publications, and lectures.

Two

An overriding concern must continue to be the quality of the professional staff effort within the Smithsonian in order to sustain the basic scholarly program. We cannot too strongly emphasize the achievement of an adequate level of technical and financial support for this effort.

Three

There are a number of courses we should avoid. We must decline requests to assume responsibilities which we believe to be too extensive. For instance, while cooperating with universities we should not seek to assume their distinctive functions. And, while cooperating with and assisting museums elsewhere, as, for instance, through the National Museum Act, we should provide guidance and expert training, not assume a policy or directional role.

Four

Without infringing upon the autonomy of our bureaus and their distinctive objectives, we shall try to emphasize the advantages of existence as a community of scholars. Our desire to maintain unity of outlook and professional endeavor suggests that the Smithsonian should select program developments that reinforce its existing activities.

Five

The museum as an institution for communicating with the public at large is one focus for Smithsonian concern. The other focus is on the vigorous prosecution of lines of laboratory studies which, if it were not for the Smithsonian and companion institutions, would not receive the attention that the national interest requires. When we constitute a museum it is with due emphasis upon its scholarly responsibilities in adding to the store of man's knowledge. These two foci of concern should continue to determine the Smithsonian's course.

Six

Beginning this year, the observance of the Bicentennial of the American Revolution will become a predominant factor in the development of Smithsonian programs. Within the settings of our museums, members of the public may seek a reappraisal of our national experience with due reference to its international setting. Fresh insights of historians should be interwoven with superb offerings of objects and art works that portray our Nation's course over the past two centuries and suggest paths for our continued development.

Seven

From the studies of the sources of energy and means for its use by living systems to the explanation of biological diversity, the Smithsonian represents an unexcelled multi-disciplinary array of information resources and professional scientists. This puts the Institution in a unique position to improve our understanding of the physical environment upon which human society depends. We anticipate increasing demands upon our efforts in systematic biology, anthropology, astrophysics, and environmental studies as important resources in the national effort in environmental improvement.

Eight

One of the most important unfulfilled hopes for the Smithsonian is that a great national museum might be developed on the Mall to recreate the experience of man's great adventure: flight and space exploration. We also aspire to present insights into the significance of the space age for everyday life and to communicate an understanding of the scientific discoveries originating from space exploration. Thus, we are coming to appreciate that it is not only machines, or relics of the past, or evidences of the skills of craftsmen that concern us, but man himself. Thus, we propose also to continue to study the idea of a museum of man which would convey additional knowledge about man and society.

Nine

The birthright of today's citizen is an understanding of the forces shaping himself and his world. It is to museums that many people look for access to the works of artists, an appreciation of the past, an awareness of the scientific view of nature, and for portents

of the future. All museums must experiment with new techniques of exhibition and embark upon research aimed at improving their effectiveness in popular education. The quality of our response to this democratic vista will continue to be a matter of overriding concern to the Smithsonian in years to come. We are hopeful that the programs under the National Museum Act can be implemented fully.

Ten

From the amassing of great national collections have arisen difficult questions about how to guarantee access to the information they contain. This will call for innovative designs of indices, catalogues, and ways to manage these collections as information resources. Perhaps some of the techniques developed for the management of voluminous flows of data from satellite observations or oceanographic stations may be adapted to the needs of the future. If man is not to be engulfed by a rising tide of reports, paper, data, computer printouts, and memorabilia, organizations such as the Smithsonian must pioneer in winnowing and selecting from the spate of messages that now fill the communications channels of our advanced technological civilization. In our role as custodian of the Nation's collections we must try to serve the public interest in improved management of scientific and scholarly information. The Science Information Exchange is functioning in a related capacity.

Budget Requirements for Fiscal Year 1972

Turning now to our budget requirements for fiscal year 1972, these are presented in four categories: "Salaries and Expenses" for the regular operating programs in our bureaus and offices and for special programs of an institution-wide nature; "Salaries and

Expenses" for the operation of the Science Information Exchange; the Special Foreign Currency Program; and Restoration and Construction of Buildings. In total, we are requesting fiscal year 1972 appropriations of \$58,751,000, an increase of \$12,794,000 over the estimated base of \$45,957,000 for fiscal year 1971 as shown in the President's Budget. I would like to discuss each of our appropriation requests in some greater detail with appropriate reference to our planning guidelines and objectives.

"Salaries and Expenses" for Regular and Special Programs

For regular and special programs, the Institution is requesting a "Salaries and Expenses" increase of \$8,672,000 on our estimated fiscal year 1971 base of \$36,332,000 for a total of \$45,004,000. The estimated 1971 base includes \$1,630,000 of essential pay supplemental funds to cover three pay raises affecting Smithsonian General Schedule and Wage employees in fiscal year 1971. It does not include a proposed pay supplemental of \$563,000 to fund the General Schedule pay raise effective on January 10, 1971, which occurred too late to be reflected in the President's Budget. These pay supplemental appropriations are an absolute necessity in order to avoid worsening a situation of already short support funds. We have absorbed this year approximately \$68,000 of higher costs of the health benefits program resulting from Public Law 91-418 which became effective on January 1, 1971. Absorption of this cost in fiscal year 1972 will amount to about \$140,000.

Included in the requested increase of \$8,672,000 is an amount of \$1,154,000 for necessary pay costs of current authorized

staff, a portion of which is aimed at meeting the full year costs of the pay raises. The balance of the requested increase, \$7,518,000, is for two broad purposes. The first is a phased elimination of shortages in technicians, very necessary library materials and services, instruments and other equipment for research, electronic data processing, and other support requirements. The second is for the continued development of programs entrusted to us by the Congress.

The increase of \$8,672,000 is distributed as follows:

-- An additional amount of \$3,791,000 is requested for the operations of the science bureaus and offices. This program increase will permit improved basic research, documentation, and education related to the Institution's traditional responsibilities in anthropology, astrophysics, biology, geology, and the air and space sciences. Activities will range from investigations that contribute to our understanding of the origin and mechanics of the universe, through investigations on microscopic organisms in the oceans depths, to the development of man as shown by artifacts and productivity, including his air and space achievements.

-- An amount of \$1,245,000 is sought as an increase for the Smithsonian's history and art activities to permit an understanding, illumination, and appreciation of our country's history through its material culture, its technology, and its art. No other institution has a greater opportunity to demonstrate what Americans have accomplished.

-- A funding increase of \$183,000 is requested for the United States National Museum activities, primarily for museum registration and conservation purposes.

-- Additional funding of \$118,000 is required for the Smithsonian's public service activities that enable it to expand its public reach beyond the walls of its centrally located museums and art galleries.

-- An increase of \$1,926,000 is sought in the special programs category of the Smithsonian's budget request primarily for the Environmental Sciences Program of environmental assessment, monitoring, and prediction; for the National Museum Act; and for a major exhibition on the World of Living Things. Continued funding of our American Revolution Bicentennial Program also is being requested.

-- And, finally, \$1,409,000 are required to allow the administrative and central support services to give adequate technical and management assistance to the museums, galleries, and research laboratories and the Buildings Management Department to provide an acceptable level of maintenance, operation, and protection services to the physical plant and program activities.

"Salaries and Expenses" for the Science Information Exchange

Traditionally, the Smithsonian has been involved with the production and management of data required for research. Much of this effort, of course, has been directed at the information associated with our collections, but we have been involved in significant other ways. The Science Information Exchange was established in 1949 by a number of Federal agencies for the purpose of coordination and communication in research programming. Since 1953 the Exchange has been operated by the Smithsonian, first with funds provided by approximately a dozen agencies and since 1964 by contract from the National Science Foundation. This has been at the level of \$1,600,000 for the past two years primarily to meet the costs of data acquisition and storage. The cost of output services is now met by user charges. The Science Information Exchange provides the national research community with a comprehensive, computerized source of pre-publication information about research programs that are planned or actually in progress in the biomedical, social, behavioral,

physical, and engineering sciences. About 100,000 records of currently active research are received annually and thousands of inquiries are being answered to assist research investigators and administrators in the planning and management of projects and programs.

Over the past year, discussions with the National Science Foundation, the Office of Management and Budget, and with user agencies have concluded that centralized responsibility for funding and management makes sense. For fiscal year 1972, the Smithsonian is requesting an appropriation of \$1,400,000 for data input. We will make every effort to increase the income from users of the Exchange services in order to meet some portion of the trimmed budget requirements for data bank costs. This income amounted to \$211,000 in 1970 and is estimated optimistically at \$375,000 in the current year. If this effort is unsuccessful, the Exchange would be terminated in the latter part of fiscal year 1972.

Special Foreign Currency Program

The requested increase for fiscal year 1972 for the Special Foreign Currency Program is \$3,000,000 for a total appropriation of \$5,500,000. The increase is essential to support urgent field studies in the Smithsonian's traditional disciplines of astrophysics, systematic and environmental biology, and anthropology which today are recognized as basic to an understanding of man's environment and cultural change. The increase is important also to insure support for on-going and new research which contributes to United States national programs under, for example, the International Biological Program under Public Law 91-438, the International Decade of Ocean Exploration, and the cooperative programs abroad under the Endangered Species Conservation Act.

Additional funds are needed to support pending and new research projects from some 22 United States institutions. Despite the slight increase provided in the fiscal year 1971 appropriation, this year's funding is sufficient only to support on-going projects and these only at a reduced level. There will be no money for new research. And, finally, the increase is essential to permit multi-year obligation of funds for research in those "excess" currency countries, like Tunisia and Morocco, where the excess designation by the Treasury Department is subject to termination at any time because the excess accounts are small. Failure to obligate funds for a reasonable number of years for projects in such countries could prematurely terminate worthy studies by United States institutions without receiving full value from funds already expended.

This program has had many accomplishments. It has benefited more than 200 institutions in 25 states. More than 107 research publications, 214 post-doctoral research opportunities for Americans, and 220 training opportunities for American Ph. D. candidates have resulted.

The General Accounting Office has recently concluded that "considerably greater amounts [of U. S. -owned Indian rupees] than are now being spent could be beneficially used." India is one of the most important areas for the conduct of comparative ecological studies. Our request for P. L. 480 monies in fiscal year 1972 reflects this and includes vital proposals to conduct studies in India comparable to those initiated in the United States under the International Biological Program and under the Smithsonian Tropical Research Institute.

Construction and Restoration and Renovation of Buildings National Zoological Park

We have recently entered into contract with the architectural firm of Faulkner, Fryer and Vanderpool for a comprehensive

revision and updating of the Master Plan for the physical development of the Zoo including schematic drawings of all facilities. This will give us the most complete plan we have ever had with reliable cost estimates at today's construction cost levels. We will apply the very latest techniques in animal habitat design and construction as well as those for the accommodation of visitors to the Zoo. This redesign will require one to two years. In the interim, an appropriation of \$200,000 is requested for fiscal year 1972 for repairs and continued maintenance on existing facilities in order to keep them in usable condition. This is the same level of appropriation as in the current year. Included in the necessary projects are repair and replacement of portions of the perimeter fence, the addition of water main lines, and repairs to buildings, cages, and sidewalks.

Restoration and Renovation of Buildings

Our total request for restoration, renovation, and improvements to existing buildings amounts to \$1,050,000. Included in this request are four projects.

An amount of \$400,000 is required to complete the program of restoration of the Renwick Gallery. This Gallery will serve the nation as an exhibit center for American creative achievements in crafts, design, and the decorative arts. In addition to staging temporary exhibitions originating from outside the Institution, the Renwick will include presentations based on the Smithsonian's extensive collections. We hope to make this Gallery an important national force in promoting the encouragement and understanding of American design. The requested funds will be used to replace the sidewalk, install exterior lighting fixtures, restore the cast-iron grillwork on the roof and windows, replace damaged marble, install an essential bird-proofing system, and provide storage facilities and public gallery furnishings. This will complete our requests for the restoration of

this building. With this requested funding, the total appropriations for the Renwick Gallery will amount to \$2,770,000. I might add that this is well under the 1965 estimate of restoration costs if that estimate is adjusted to reflect the very substantial inflation in construction costs over the past six years.

Funding of \$125,000 is requested to correct a serious sewer system problem in the Smithsonian Building, the Arts and Industries Building, and the Freer Gallery of Art by separating sanitary wastes and rainwater runoff. We have had serious flooding in the basements of these buildings during heavy rains.

We are also requesting \$25,000 to modify space at the Smithsonian's Lamont Street building to house essential library materials, space for which does not exist in the Mall buildings.

And, as a very important request, we are seeking an appropriation of \$500,000 to prepare plans and specifications for Bicentennial facilities to be added to the History and Technology Building and to design exhibits for these facilities. The provision of these facilities, to be located on the terraces of the building, is central to this Museum's carrying out its planned twin themes of the Bicentennial celebration: what the nations of the world gave to the United States and what our nation has given to other nations.

Construction Joseph H. Hirshhorn Museum and Sculpture Garden

An appropriation of \$3,697,000 is requested for fiscal year 1972 to liquidate the remaining contract authority. This appropriation, with the \$1,000,000 legally committed by Mr. Hirshhorn, will complete funding of construction contracts and supervision of construction.

Planning and Redesign
National Air and Space Museum

We are asking for an appropriation of \$1,900,000 for planning and redesign of a building for the National Air and Space Museum. The object of this redesign from the authorized design of 1966 would be to apply the latest design, construction, and exhibit techniques to lower the cost of the building to some prudent ratio in today's expanding construction market between design and expectations and real dollars while still providing outstanding facilities to display the many unique aeronautical and astronautical items in the collections. We have the objective of opening this new museum building in July 1976 as a major element of our contribution to the commemoration of the Bicentennial of the American Revolution.

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This completes an overview of the Smithsonian's budget requests for next year. For almost 125 years, the Institution has provided the American people with greater knowledge and appreciation of their common environmental, cultural, and technological heritage. This has only been possible by the support of the Congress. This support is deeply appreciated and with your continued involvement in our programs, we are confident of our ability to serve in the future.

CELEBRATION OF 125TH ANNIVERSARY

Dr. RIPLEY. This is a particularly auspicious year, Mr. Chairman, for the Institution because it marks our 125th birthday. In August 1846 Congress decreed the acceptance of the Smithsonian bequest and by act inaugurated the Institution.

The first meeting of the Regents of the Institution was held in September 1846, and the Regents have asked that we celebrate this occasion in some way this autumn. We are hoping that the Congress will see fit to introduce a resolution during that period to signalize the events that have transpired over the past 125 years.

Senator BIBLE. Has that resolution been prepared? Is it in the hopper?

Dr. RIPLEY. No, sir.

Senator BIBLE. If you send it to me I will be one of the introducers. I think this is well worth commemorating, and I know of very few institutions in our Government which is as criticism-free as the Smithsonian. You are not entirely criticism-free. There is some, and that is part of public life, but I think over the history of the Smithsonian it has had a very illustrious history, and I think it should be noted and a resolution properly passed.

Dr. RIPLEY. We would be delighted, sir, if you would join in sponsoring that resolution.

Senator BIBLE. When does that occur this year?

Dr. RIPLEY. August and September is the period of the anniversary.

Senator BIBLE. Very well. You may proceed.

VISITORS

Dr. RIPLEY. This past year we have had very considerable increase in visitors over the preceding year, as you will have noted from my statement which you have kindly accepted for introduction in the record.

Senator BIBLE. It has been introduced in full.

Tell me how many visitors you had last year and how many you expect this year.

Dr. RIPLEY. Last year we estimated 10.4 million on the Mall, and this year this figure has increased by 3.2 million to 13.6 million.

At the zoo, we estimate that we have had about 5 million visits in the past year and at the Anacostia Neighborhood Museum, we have had about 50,000 visits.

Senator BIBLE. Those are add-ons to the other figures, is that right?

Dr. RIPLEY. Yes; those are add-ons.

Senator BIBLE. All right.

HIRSHHORN MUSEUM CONSTRUCTION

Dr. RIPLEY. This year has also marked the inauguration of the construction of the Hirshhorn Museum. The foundation parts are vir-

tually 75-percent complete, and the Mall slab is about 30-percent complete. We project that the building will be ready for occupancy in September 1972, and that a subsequent 6- to 10-month period will be required to furnish and install the objects for a mid-1973 opening.

Senator BIBLE. Very well.

FOLK LIFE FESTIVAL

Dr. RIPLEY. Now, this past year we had a very successful Folk Life Festival. I am not sure the Senator came, but I know a number of Senators did come in July.

Senator BIBLE. On the Fourth of July I was celebrating at a Basque picnic in Nevada. But I am sure it was great.

Dr. RIPLEY. It was a great festival, and both Senator McClellan and Senator Fulbright from Arkansas joined in the dancing. The Festival celebrated the State of Arkansas.

Senator BIBLE. Very well, you may proceed.

RESEARCH—INTERDISCIPLINARY CHARACTER

Dr. RIPLEY. The research of the Institution in the past year has been as varied and interesting as ever.

One of our concerns has been to emphasize continually the fact that whatever we do has an essential interdisciplinary character and quality. The reason for this is that so much of what life is concerned about today is essentially derived from interdisciplinary pursuits.

EDUCATION

In spite of the fact that narrow specialization continue to be the rule in the general educational procedures, more and more interdisciplinary studies are required to analyze and to confront the problems of everyday life today.

ENVIRONMENT

I am sure the Senator will agree with me that environmental problems which seem to be so frequent today require strong interdisciplinary team efforts at solving or tackling them, technologically or ecologically.

We have a number of examples of some of the aspects of our research which I would like to show you.

Senator BIBLE. I will be happy to see those, but let's complete our hearings and then you show them to me at the end of the hearing.

Dr. RIPLEY. Fine. I have them here and we will refer to them later.

But in any case, it has been a central purpose of the Institution over the years to make sure that what we were doing in the way of research tied into everything else that we were doing, and that at no time were we doing things which were not related to these central purposes for the increase and diffusion of knowledge.

FOOD SAFETY

An example is cited in my testimony about food safety. We have shown quite conclusively that in the analysis of mercury in tuna and other fishes, the importance of having historical collections of specimens which can be analyzed to show whether or not mercury has existed prior to the extensive use of it in agriculture and for other purposes. We have shown that levels of mercury even higher than the level tolerated or required to be the maximum level by the FDA actually existed in species of fish prior to the introduction of mercury in agriculture.

DDT

In the same way, we have shown conclusively that the presence of DDT in the atmosphere has had a catastrophic effect on certain species. We have studied birds' eggs, some of which I will show you later to show the differences in old birds' eggs versus the same species of egg today.

WOODROW WILSON CENTER

We have welcomed in the past year our sister and affiliated institution, part of the Smithsonian, the Woodrow Wilson International Center for Scholars, testimony on whose budget you have already heard.

Senator BIBLE. Yes, we have heard that. A fine showing was made, and so far as I am concerned, I am convinced.

NATIONAL MUSEUM ACT BUDGET REQUEST

Dr. RIPLEY. Public Law 91-629 approved in December 1970 reauthorized appropriations for the National Museum Act in the amount of \$1 million each year, a portion of which would be made available by the Smithsonian to the National Endowment for the Arts and the Humanities.

We are asking for funds under the National Museum Act this year.

Senator BIBLE. In what amount, the total authorized?

Dr. RIPLEY. Yes, Mr. Chairman.

Senator BIBLE. Do you transfer that to the National Endowment for the Arts?

Dr. RIPLEY. We would transfer \$100,000 each to the arts and the humanities endowments.

Senator BIBLE. What do you do with the balance?

Dr. RIPLEY. We would administer the balance under our own program.

Senator BIBLE. How would you administer this?

BELMONT REPORT

Dr. RIPLEY. We would use these funds for training, conservation, and exhibit techniques for the Nation's museums. If you will recall, sir, this is the recommendation of the Belmont report which was requested by President Johnson. This was a study made by the American Association of Museums to show that the Smithsonian could pro-

vide leadership and guidance in the field of museum techniques, conservation, and related matters.

Senator BIBLE. I don't question that. The only point I was concerned about is why are you used to bolster up the museums. I think the testimony in the last few days has been that there are something like 6,000 museums throughout the United States. I suppose that is a fairly, accurate figure. Why should you be doing this to help museums—and I think that is indicated—and at the same time have the National Endowment for the Arts and the National Endowment for the Humanities doing the same thing? Why are you all in the same field? Is that not an unnecessary duplication?

Dr. RIPLEY. I can say, Senator, that the Smithsonian, as we testified before your committee in the past, has been receiving every year for approximately 100 years, appeals by museums for help in exhibitions, training, conservation techniques, museum operation, and administration. We are in effect in a position to be sort of the fountainhead of knowledge about how to organize and run museums.

WORK DISTINCTIONS

Senator BIBLE. I am not questioning that. The thing I am questioning is why do the National Endowment for the Arts and Humanities do the same thing?

Dr. RIPLEY. They don't do the same thing.

Senator BIBLE. What is the difference? What do they do that you don't?

Dr. RIPLEY. The National Endowment for the Arts gives small grants for the arts, including arts in museums.

We give, or try to give, small grants for technical services in museums, which are quite distinct.

Senator BIBLE. You both give grants, but they are of a different nature?

Dr. RIPLEY. They are of different nature, and we have in the legislation a Federal Council on the Arts and Humanities on which I sit, which is able to coordinate this and make quite sure we are running on parallel, but not overlapping, tracks in support of museum activity.

The National Museum Act was enacted to recognize the Smithsonian's traditional practices in offering technical assistance to the museum field, but not to provide direct financial support solely for the benefit of a particular museum. The national endowments are authorized to provide program support to the particular museums within their statutory jurisdiction.

MUSEUM PERSONNEL

Senator BIBLE. How many people do you have within the Smithsonian who are handling the national museums?

Dr. RIPLEY. We have one director and a small staff of two assistants. We have three people at the present time.

Senator BIBLE. I forget what the testimony was from Nancy Hanks and the Acting Director of the Humanities as to the number they have. It was something in that range, as I recall. I don't recall the exact number. You say you have three total people?

Dr. RIPLEY. Yes.

Senator BIBLE. All right.

TRAINING AND TRAINING GRANTS

Dr. RIPLEY. We are concerned with work in training technicians, conservationists, and museum exhibition preparators within museums. This is totally distinct from the activities of the endowments.

Senator BIBLE. Does the Smithsonian make direct grants to museums in the States?

Dr. RIPLEY. We have, over the past 3 years since the inauguration of this act, raised and used out of our public and private resources a small amount of money each year to make training grants to museums.

Senator BIBLE. Just training grants? Do you make any outright grants to museums?

Dr. RIPLEY. Not outright, per se, no. We would not make such outright grants under this program. What we would do would be to conduct training seminars.

Senator BIBLE. But you conduct the seminars. You don't make a grant to another museum and let them do it?

Dr. RIPLEY. We would make a grant to let them do it, but we would participate in it and help organize the people who are to go to it.

Senator BIBLE. Those are dollar grants?

Dr. RIPLEY. Essentially, yes.

Senator BIBLE. For the record, supply the number of grants you have made in the national museum program in dollars and where they were granted, and what thrust the grant had, what was it to do.

Dr. RIPLEY. We have that material in hand, but you prefer we place it in the record?

Senator BIBLE. It can be placed in the record.

(The information follows:)

Grants made for National Museum Act Purposes
FY 1967 - 1971

1967

<u>Grantee</u>	<u>Purpose</u>	<u>Amount</u>
L. McKinley	Report on Symposium on Korean National Museum	\$ 561
Arkansas Arts Center	Support of Seminar on Role of Regional Museum	2,500
American Association of Museums	Publication of Manual on Museum Registration	5,000
Chicago Field Museum of Natural History	Support of training program: 3 museum internships	18,000
New York American Museum of Natural History	Support of training program: 3 museum internships	18,000
Los Angeles Museum of Natural History	Support of training program: 3 museum internships	18,000
International Council of Museums	For report on ethnological museums	700
H. Plenderleith, (Rome Centre)	For report on conservation center at Honolulu	250
Rome Centre	Support of Seminar on International Center for Preservation of Cultural Property at Rome	1,672
	Total	<u>\$64,683</u>

1968

J. Hirschmann (OAS - Pan American Union)	For report on evaluation of science museums	\$ 350
H. Plenderleith (Rome Centre)	For report on deterioration of marble	125

1968 (continued)

<u>Grantee</u>	<u>Purpose</u>	<u>Amount</u>
Korean National Museum	Support of development of Korean National Science Cultural Center	\$7,200
National Foundation on Arts & Humanities	Support of Conference on Museum Needs of U.S. (Belmont)	2,800
	Total	<u>\$10,475</u>

1969

Norfolk Museum of Arts & Sciences	Support for Museum Seminar: Southeast Museum Conference	1,980
American Association of Museums	Support for feasibility study of museum procedures	10,000
B. Bearzi	Lecture on Ancient Metal	100
Korean National Science Cultural Center	Support of development of Korean National Science Cultural Center	7,200
American Association of Museums	Support of ICOM-US activities	18,000
American Association of Museums	Support of Regional Conferences	15,000
	Total	<u>\$52,280</u>

1970

Metropolitan Museum of Art	For support of International Institute of Conservation--Seminar on preservation of wood	\$ 875
Oakland Museum	Exhibit planning & consultation	1,544
Museum Planning, Inc	To conduct survey of National Museum of Natural History exhibits	12,500
American Association of Museums	To conduct feasibility study of museum standards	4,000
American Association of Museums	For support of Regional Conferences	15,000

1970 (continued)

<u>Grantee</u>	<u>Purpose</u>	<u>Amount</u>
Korean National Museum	Support of development of Korean National Science Cultural Center	\$ 2,400
	Total	<u>\$36,319</u>

1971

*International Institute for Conservation	To support seminar on conservation	5,000
American Association of Museums	To publish report on finances of American museums	5,000
American Association of Museums	Analyzation of Accreditation Questionnaires	5,000
American Association of Museums	To support ICOM-US activities in the United States	25,000
	Total	<u>\$40,000</u>

Private Funds

International Council of Museums	Publication of manual, <u>The Training of Museum Personnel</u>	\$ 3,860
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* In process

REDESIGN OF NATIONAL AIR AND SPACE MUSEUM

Senator BIBLE. You may proceed.

Dr. RIPLEY. In addition, as you know, Senator, we are appealing for funds this year for the inauguration of the redesign of the National Air and Space Museum. We have been allowed under the budget of the President this year to ask for the sum of \$1.9 million for this redesign purpose.

You may recall, Senator, that the report of the Senate Rules Committee accompanying the 1966 legislation authorizing the construction of the National Air and Space Museum stated that the Smithsonian was not to proceed to construct this museum until there was a significant decline in the costs of the war in Vietnam.

Each year subsequent to 1966 we have been prevented by this language from requesting funds for construction. As 5 years have passed since that time, it seems prudent to us not to go back to the Congress for the exact design approved in 1966 on account of the incredible escalation in costs of construction, and also on account of technological improvements which have occurred in the meantime in design techniques for exhibits and public space.

Therefore, we wish to come back now for funds for redesign. The Rules Committee of the Senate has said that there is no hindrance to our asking for design money in contrast to construction money under the construction holddown.

We wish to come back now and ask for design money in order to see how prudently we can approach this problem and come back in a following year for construction funds.

Senator BIBLE. How much are you asking for in this budget for design money?

Dr. RIPLEY. \$1.9 million, Mr. Chairman.

Senator BIBLE. Is that total for design?

Dr. RIPLEY. Yes; that is total for design.

REDESIGN TIME REQUIREMENT

Senator BIBLE. What would be the time required for the architects to develop the planning and design so that the National Air and Space Museum could go to bid?

Dr. RIPLEY. We believe this could be accomplished within a year.

Senator BIBLE. Within 1 year?

Dr. RIPLEY. Well within 1 year. The reason for this optimistic view is that the architect is the same architect as for the current design. He is willing to redesign and, in fact, has already been working on thoughts along this line. We believe, and have so expressed this to the Office of Management and Budget, that if we could redesign in fiscal year 1972, we could open the completed building at a cost in the low forties of millions rather than \$65 million or more if we went with the old design, thereby saving at least \$20 million.

SPACE REDUCTION AND LOCATION

Senator BIBLE. Are you cutting down in square feet?

Dr. RIPLEY. Yes; we would cut down in total square feet, but we believe we could make up for it with design improvements.

Senator BIBLE. Where is this building to be?

Dr. RIPLEY. Between 4th and 7th Streets, Independence Avenue and the Mall, it exactly parallels in space the National Gallery of Art, which is on Constitution Avenue. This building would be on the south side of the Mall on Independence. There used to be a number of temporary buildings there.

Senator BIBLE. I think I have the location in mind

Dr. RIPLEY. It is opposite HEW's first building.

UNDERGROUND PARKING

Senator BIBLE. Do these plans propose an underground parking facility underneath the Mall?

Dr. RIPLEY. We still have in the plans, as requested by the Congress in the original act, plans for a smaller underground parking space, but this has not been decided and would have to be contingent upon the design.

ANTICIPATED MUSEUM PERSONNEL

Senator BIBLE. What would the total amount of employment be within the National Air and Space Museum?

Dr. RIPLEY. The estimate of the future number of staff would be under 100 people.

Senator BIBLE. What is the total amount today?

Dr. RIPLEY. Today we have 35 persons on board, Mr. Chairman.

This number includes offcampus people at Silver Hill, our conservation facility in Maryland where we store and work on air and space and other collections.

Senator BIBLE. Is that where you have your general warehousing, at Silver Hill?

Dr. RIPLEY. Yes.

Senator BIBLE. And your other Smithsonian activities, storing old whales?

Dr. RIPLEY. We store old whales and other mammals up at Silver Hill.

PUBLIC INTEREST IN PREHISTORIC ANIMALS

Senator BIBLE. Didn't you say some years ago that the younger generation wasn't as interested in the prehistoric animals as the older and you had changed your exhibits?

Dr. RIPLEY. No; I don't recall saying that. In fact, on the Smithsonian Mall we are getting a new prehistoric animal which is only 3 feet high. It is from Sicily, and it is a miniature. It is a true species, and the first specimen exhibited in this country of one of the dwarf prehistoric elephants.

Senator BIBLE. Mr. Eaton and I will be over there one day, but we have to go to the Zoo first and see the lions.

Dr. RIPLEY. The world's largest stuffed elephant is in the middle of the rotunda of the Natural History Building.

Senator BIBLE. Is that the largest elephant in the world?

Dr. RIPLEY. It is the largest specimen mounted; yes.

PARKING FACILITIES FOR PUBLIC

Senator BIBLE. What is the joint venture by the National Park Service and private capital to which the Board of Regents has been requested to give consideration?

Dr. RIPLEY. I think Mr. Bradley could talk about this, because he has been serving on this interagency committee.

Mr. BRADLEY. Mr. Chairman, the Park Service, in collaboration with the Smithsonian, has undertaken studies for possible underground garaging of automobiles, primarily visitors' automobiles. This thought arises somewhat derived from the Union Station arrangement, whereby the Department of the Interior, with the Washington Terminal Co., is using private capital and Federal capital, to make possible there a visitors' center and a very large garage.

Senator BIBLE. At Union Station?

Mr. BRADLEY. Yes, Mr. Chairman. That project is about to go ahead. We understand it has been in difficulty on financing charges because of the increases in the interest rate. Now it looks like they can go ahead. So, deriving from that, and based on an engineering study as to costs and feasibility from a fiscal and engineering standpoint, we think we might be able to get in collaboration with the Park Service and with some private enterprise in the city here to develop parking under the Mall.

Senator BIBLE. Very well; you may proceed, Mr. Secretary.

PROFESSIONAL STAFF SUPPORT

Dr. RIPLEY. I think I would like to conclude my general presentation, Mr. Chairman, saving the particular objects which are here in front of us for the end, by simply saying that I think our principal concern, aside from the creation of additional facilities for the public, not only the Air and Space Museum, but the additional Art Museum, the reconstruction of certain old buildings in the National Zoo, and so on, our principal and overriding concern is for support of our professional research and curatorial staff.

Over the past several years our budget has been eroded significantly by cost increases to the point, on which we will speak later when we defend individual budget items, to the point where the average professional person working in the Smithsonian is not only not being given a fair shake in terms of support for his research, but is being given support at the poverty level. We do face a serious hazard that in future years we will not be able to support these people and not be able to undertake the mission which has been entrusted to us by the Congress.

ANNUAL REPORT

I would like to show you our annual report, which is a swingline version—I believe it might be called—of 1970. This is about a third of the size for 1969, and is an effort to reduce costs and make it a more useful document.

Senator BIBLE. I think that is good. If you have shrunk it up three times you get more people to read it.

How many of those do you publish?

Dr. RIPLEY. 9,000 copies were printed for each year, fiscal years 1969 and 1970.

Senator BIBLE. Who is on your list of distribution?

Dr. RIPLEY. I know you are, Senator.

Senator BIBLE. I am on everybody's list, everybody who wants money. I have a list a mile and a half long. Everybody who comes before the Appropriations Committee sends me a nice letter or an annual report or a brochure. So, I have plenty of mail.

Dr. RIPLEY. The Smithsonian report goes all over the world to libraries, to scholarly societies, and to other organizations in the tradition of the diffusion of knowledge. We started this report in 1846 and we have continued to make it available to the public.

Senator BIBLE. I wonder how many people read annual reports, whether they are in IBM, or General Motors, or Government publications. How many people write you and say, "Dear Mr. Secretary, this is a wonderful work of art, and I want to compliment you on it"?

Dr. RIPLEY. I would say I get about a hundred letters of that sort, and out of that hundred about half of them say, "It is a marvelous looking thing, and I am putting it right beside me to read."

About half of them say, "I have looked into it, and it looks terribly promising."

Four or five of them say, "This is a great one this year, I have read every word of it."

Senator BIBLE. That is about the way I answer my mail. That shows it does reach a number of people, who pay a little attention to it.

Dr. RIPLEY. One stratagem that we have undertaken in the last 4 or 5 years is to extract the first section of the report which is about 25 or 30 pages long and call it the statement of the Secretary, mail it out in paper covers. This gets read a lot.

Senator BIBLE. Yes.

REPORT COST

How much does it cost you to produce this? You have cut it down a third. Have you reduced the cost a third, two-thirds?

Dr. RIPLEY. Mr. Jameson, do you know?

Mr. JAMESON. The fiscal 1969 report cost about \$28,000, and the 1970 report cost about \$9,000, so we saved about \$19,000.

Senator BIBLE. There you are. Now you don't have to ask for so much if you saved that \$19,000, and increase the pay of these museum helpers that you are having so much difficulty in holding.

Dr. RIPLEY. That will help us with two of them.

Senator BIBLE. All right.

SCIENCE INFORMATION EXCHANGE

Dr. RIPLEY. The last item that I would like to refer to in my general overview of this year is the fact that this year for the first time we are asking for funds for the Science Information Exchange. This is an addition to our previous budgetary requests.

The reason for this is the decision taken by the Office of Management and Budget that the National Science Foundation should appropriately discontinue its funding for this Exchange. We should attempt to get an essential base funding for the Exchange with additional support from users of the information, and try it on our own.

If we are unsuccessful in this funding effort this year, we will have to terminate the Science Information Exchange, which has been working for more than 20 years serving a constituency across the land of scientific agencies, Government agencies, and a variety of users who wish digests of current scientific research.

But that fund raising effort is in the lap of the gods, and we wish to try at least for a period of time with an authorized budget to see if we can continue to fund it.

It seems to be anomolous that in times like the present when science information seems to be at a premium, every Government inter-agency review calls science one of its highest priorities. But we may not be able to acquire the necessary funding to run this rather small but expert assemblage of people who are in the business of acquiring, digesting, and retrieving science information and making it available to public agencies and others.

Senator BIBLE. How much do you have in this budget for that?

Dr. RIPLEY. A request for \$1.4 million, Mr. Chairman.

Senator BIBLE. What do you do with the \$1.4 million?

Dr. RIPLEY. We estimate that to run the data acquisition and storage function of the Science Information Exchange for 1 year costs \$1.6 million. The allowance that we have been given by the Office of Management and Budget is \$1.4 million. If we receive this, we can operate for approximately 10 months. We will attempt to make up part of the difference from user charges we may receive. Otherwise, we shall have to close down prior to the end of fiscal 1972.

Senator BIBLE. As I understand it, for prior years you were funded in this activity from the National Science Foundation.

Dr. RIPLEY. Initially we were funded by a consortium of agencies, each of which chipped in to make the total funding necessary.

Finally, it was decided that one agency should be the lead agency in funding the SIE activity. The National Science Foundation has done this faithfully for a number of years, but with diminished funds on their part they decided they could not afford it any more.

Senator BIBLE. How much was provided by the National Science Foundation for this purpose in the last fiscal year?

Dr. RIPLEY. About \$1.6 million in the last year, \$200,000 more than we are asking for now.

Senator BIBLE. Has that been the average funding over the last few years?

Dr. RIPLEY. It has been a declining funding over the past few years.

Senator BIBLE. What was the peak?

Dr. RIPLEY. \$2 million, Mr. Chairman.

Senator BIBLE. Then it went down to \$1.6 million?

PERSONNEL

Dr. RIPLEY. Yes, and we have had to let people go as a result and reduce the scope of the operation.

Senator BIBLE. How many personnel are involved in this activity?

Mr. WHEELER. Eighty-five, Mr. Chairman.

Senator BIBLE. Now if you are funded for this amount, obviously the National Science Foundation will not be. How many people will be involved if you are funded for your request of \$1.4 million? I am not clear on where that \$200,000 comes from.

Dr. RIPLEY. We would have to keep the 85 persons to make the service work properly at all, as long as we have any money. When we run out of money then we would have to let everybody go.

Senator BIBLE. I thought you said it was a \$1.6 million activity.

Dr. RIPLEY. \$1.6 million is for a full year. We estimate we cannot run more than 10 months in fiscal 1972 on \$1.4 million.

Senator BIBLE. Why do you ask for \$1.4 million?

Dr. RIPLEY. We are allowed to ask for \$1.4 million and see what we can do to make up the difference from user charges.

Senator BIBLE. Can you illustrate?

Dr. RIPLEY. May I call on Mr. Freeman? He is here.

Senator BIBLE. Yes.

Mr. Freeman, do you want to come forward?

Dr. RIPLEY. This is Dr. Freeman, our trusted veteran of 10 years as Director of the Science Information Exchange.

USER CHARGES

Dr. FREEMAN. The situation is that in earlier years, the Exchange was completely funded by appropriated funds from a number of agencies and then from the National Science Foundation. Two years ago, we instituted user charges to pay for the cost of output services.

Senator BIBLE. What I want you to do is illustrate so I can understand what user charges are. How do you do it? That is what I am asking. You weren't getting enough money through appropriations to run the Science Information Exchange. Therefore, you had to get money from somewhere, and you started charging the users.

Dr. FREEMAN. Yes, sir.

Senator BIBLE. Illustrate. I want to use your Science Information Exchange. What do you tell me?

Dr. FREEMAN. There are a variety of questions that one can ask. The basic one is, "Who is currently working on what projects at the present time?"

Senator BIBLE. All right, I would like to ask you. Maybe this is where I get the information from you. You have been there 10 years. I would like to have you tell me, and this will be an exercise without pay—I don't want a user charge—but I wish you would tell me how many bureaus and agencies and departments of Government are working on the environment. Do I go to you, and do you give me that answer?

Dr. FREEMAN. Yes, sir.

Senator BIBLE. That would be the first question. Then the second one is, I would like to have you tell me how many departments, agencies and bureaus of the Federal Government have some role in the problems of our American Indians. Is that in your department?

Dr. FREEMAN. Yes, sir. We are particularly concerned with basic and applied research. We would have quite a comprehensive list of research projects that are concerned with the social problems, physical

problems, or medical problems as they are related to the American Indian, or to any other ethnic group that is the subject of inquiry.

DETERMINATION OF CHARGES

Senator BIBLE. I am a history professor from the University of Nevada, and I would like to get that information, and you write and say, "Dear Professor: We can furnish you this information, but we are going to charge you x dollars." Is that what you tell me?

Dr. FREEMAN. Yes, sir.

Senator BIBLE. How much will you charge me?

Dr. FREEMAN. That depends on the question, Mr. Chairman.

Senator BIBLE. I asked the Indian question. Is it billed on an hourly basis?

Dr. FREEMAN. Partly on an hourly basis, partly on the computer cost. The charged is based on the cost of the labor, machine time, and overhead needed to get the information out of the data bank into the format required by the requester.

These requests vary from a collection of over 5,000 records dealing with water resources down to a question that simply calls for the summary of a single project on one piece of paper.

Senator BIBLE. I understand you couldn't send me my bill or tell me what my bill might be today, but what would be the range of the bill for questions I might ask you? What departments and agencies of the Federal Government have some role, whatever that role is, in the problems of the American Indian? Would you be sending me a bill?

Dr. FREEMAN. The cost of a report on research on the American Indian would probably be less than \$40.

Senator BIBLE. Less than \$40. What is the maximum amount of user fees that I might expect in this area? Is it still \$40?

Dr. FREEMAN. No, sir. We have a contract, an agreement, at the present time, to produce a collection of 5,000 projects dealing with water resources. To put that information together and deliver it in the form of a manuscript and computer tape, cost about \$28,000.

Senator BIBLE. \$28,000. This would be a pretty extensive and all-embracing—is it a treatise, a bibliography, or what? What do you finally come up with? Is it a thesis or a book?

Dr. FREEMAN. It is simply a catalog, properly indexed and edited that includes all of the projects that we can find available, over 5,000 of them that were active during the past fiscal year that related to research on water resources.

Senator BIBLE. Is that wherever they are located in various universities in the country?

Dr. FREEMAN. Yes, sir.

SOURCES OF INFORMATION

Senator BIBLE. You must have a vast contribution list, then, that feed into this exchange.

Dr. FREEMAN. We have approximately 100,000 records a year of currently active research coming in every year.

Now this research, of course, has not been completed. Our information is pre-publication data. It is a summary of a research project

that is going on at the present time. Each record is a one-page summary. We get these records from 600 to 1,000 agencies throughout the United States, agencies that either support research, fund it, sponsor it, or actually carry it out.

Senator BIBLE. Do you charge your fellow agencies in the Federal Government for this service?

Dr. FREEMAN. Yes, sir.

Senator BIBLE. The same as you do a private request?

Dr. FREEMAN. Yes, sir.

Senator BIBLE. That is based largely on the difference between the appropriated amount and the amount it would cost you to produce it?

Dr. FREEMAN. Yes, sir. What we use appropriated money for at the present time is to build the computerized data bank in which all this material is stored. Once it is in this data bank it is essentially, shall we say, merchandise on the shelf. When someone comes to us with a question, for instance, "What current research is going on that you know about in drugs and drug addiction?" Our service fees follow the lines of the Freedom of Information Act that was passed several years ago. We charge for the labor and the computer time required to get this information out of the files and into the particular form the user wants it.

Senator BIBLE. Thank you, Doctor.

SIMILAR WORK BY OTHER AGENCIES

Are there other Federal agencies doing similar work to what you are doing?

Dr. FREEMAN. Yes, sir. Not strictly similar, but there are other Federal agencies that have this type of data bank for their own material. We were established for information exchange between agencies and others. For instance, the Department of Defense and the Department of Agriculture have such files, but they handle only their own information.

Senator BIBLE. How about the Department of the Interior, since you mentioned water resources? I was always given to understand that the Department of the Interior had a pretty vast—I don't know if "vast" is the right word for it—an extensive library on water problems as well as research divisions within the Department of the Interior, unless it was transferred under some of the reorganization bills that were just recently enacted.

But can I get that same information just on water resources from the Department of the Interior, the Bureau of Reclamation, or the Geological Survey that I can get from you?

Dr. FREEMAN. No, sir. What I believe you are referring to here is completed research, technical bulletins, general articles, reports of completed research. What SIE handles exclusively is records of research that is going on and has not yet been completed.

The purpose of this whole service, as set up by the agencies 20 years ago, was to prevent useless or unwarranted duplication of effort. Agencies needed to know what other people are doing at the present time. It takes from 1 to 3 years between the time a project is started and the time it is completed and the final report is in the literature as a published record. The SIE is intended to cover this information gap of 1 to

3 years, so that people will know if other people are working on the same projects. Knowing this, they won't start duplicating research work, which is perhaps already 2 years underway.

Senator BIBLE. You have had such a division within the Smithsonian for how many years, did you say? You say you have been aboard 10 years.

Mr. FREEMAN. Yes, sir. But the Science Information Exchange has been in the Smithsonian since 1953. The Federal agencies first wanted this service in 1950 for their own planning and management services and for early information about what other agencies were planning and doing.

They asked the Smithsonian to undertake this particular operation in 1953.

DIRECT FUNDING IN LIEU OF REIMBURSEMENT BY NSF

Senator BIBLE. It seems to me that it has a very definite role and a very definite function. I can't understand why this new request at this time for funding.

This may be properly directed to Secretary Ripley rather than you, but why do you go through the new concept of funding it yourself rather than having yourself reimbursed from NSF?

Dr. RIPLEY. Because over the years the agencies came more and more to assume that since we run the SIE we should ask for its funding directly. It is within our traditional competence to attempt to keep scientists, and, in addition, the agencies that employ the scientists, in touch with each other on ongoing research and to communicate back and forth. The SIE provides the kind of information that a scientist needs in order to do his research.

But this effort became coordinated into a specifically directed activity only after World War II, and the Smithsonian was the traditional place in which to center the SIE's work.

But since our budget was not sufficient to be able to absorb the necessary costs of running an efficient highly organized operation involving computer services, the agencies began to pay us. Then the NSF took over funding responsibility. Now we and they believe we should both manage and fund the SIE. As you know, the zoo was separately funded and administered for a number of years. Like the zoo, we now wish to combine the management and funding responsibility together for prudent and efficient purposes.

PERSONNEL REQUIREMENTS

Senator BIBLE. Why do you need 85 people, no matter who is running it? Why do you need 85 people?

Dr. RIPLEY. I think Dr. Freeman would say, sir, that we need more than 85 people.

Senator BIBLE. Probably he would tell us that.

Dr. RIPLEY. We have already lost 75 people through the level of diminished funding. The staff consists of people expert in computer operations as well as in analyzing and describing research projects. They are highly skilled people in the whole problem of information assessment, retrieving, editing, and compilation.

In order to run this operation for the fullest range so as to be able to cover the whole spectrum from anthropology, A, to zoology, Z, with medicine along the line, you need a substantial number of well-trained people.

RECEIPTS FROM USER CHARGES

Senator BIBLE. How much have you received from your users' fees in each of the last 5 fiscal years, or 4 fiscal years?

Dr. FREEMAN. We started charging service fees only 2 years ago.

Senator BIBLE. All right.

Let's go back 2 years. How much did you receive in the first full year of operation where you started charging users' fees?

Dr. FREEMAN. About \$200,000, Mr. Chairman.

Senator BIBLE. \$200,000?

Dr. FREEMAN. Yes, sir. I might add in 1968 when we didn't charge any service fees, in other words, appropriated funds paid for the entire input and output, we had a cost accounting system that indicated that we had distributed about \$650,000 worth of services.

Senator BIBLE. How much did you take in in users' fees in the last full fiscal year 1970?

Dr. FREEMAN. In 1970, for the first full year of charging, the amount was about \$211,000. This year we anticipate about \$325,000.

Senator BIBLE. What is the total amount of appropriated and private source money?

Dr. FREEMAN. It has been very close to \$2 million ever since 1965.

Senator BIBLE. All right. I think that is all the questions that I have on this particular phase. Thank you, Doctor.

The statement which you submitted in support of funds for the Scientific Information Exchange will be printed at this point.

(The information follows:)

SCIENCE INFORMATION EXCHANGE

1970 Actual	0 ¹ / ₁ /
1971 Estimate	0 ¹ / ₁ /
1972 Estimate	\$1,400,000

The Science Information Exchange, which has been in operation for 20 years, has been conducted by the Smithsonian since 1953 at the request of, and on the behalf of, the federal agencies. Funding is currently provided by the National Science Foundation.

The SIE data bank receives and processes about 100,000 one-page records (2.5 to 3 million data elements) of research planned or in progress annually. About 80 percent of the input comes from federal agencies and 20 percent comes from private foundations, universities, state and local governments, industry, and some foreign sources. From this data bank, SIE answers questions from research investigators, directors and program administrators throughout the national science community about who is currently working on what project, where, when, and with whose support. The purpose of this national service is to help investigators and administrators avoid unwarranted duplication and unnecessary overlap of complex programs and to assist in more efficient planning and management of research projects and programs. It is one to three years from the time a project is planned and started until the time it is completed and reported. Efficient planning and management requires the earliest information about what others are doing.

For fiscal year 1972, the Exchange is requesting an appropriation of \$1,400,000. The Exchange has been funded at a level of \$1,600,000 by the National Science Foundation in fiscal years 1970 and 1971 (1971 at the monthly rate of \$1,600,000 for ten months because of the difference in SIE's fiscal year). The fiscal year 1972 budget request of \$1,400,000 is contingent upon the realization of additional income generated through the recently established user charge system. Federal appropriations are used for the collection, processing, and storage of the data as a national repository and a national service. Since December 1968, non-federal users have paid for retrieving, synthesizing, and packaging the requested information. All users have paid for such services since July 1969.

About 80 percent of the output service goes to the federal agencies their grantees, and contractors. Their requests range from the retrieval of records (at one dollar each) to the preparation of printed annual catalogues of 1,500 pages (at \$25,000) describing the current national research effort, for example in water resources, marine sciences, and environmental quality. The total cost of all output products in fiscal year 1970 was \$211,000. SIE experienced an average increase of 200 percent in the demand for services over fiscal year 1969. This demand for services is illustrated on the following pages. In fiscal year 1968, before any service fees were imposed, the output services totaled \$650,000. This is the approximate income target that must be achieved in fiscal year 1972 for the Exchange to operate without a financial loss. The large drop in usage resulted from the imposition of user service fees without prior notice and an almost constant federal R&D budget in the face of rising research costs. It is quite obvious that early and adequate information is more essential than ever to efficient planning and management, in research as well as in any other enterprise. At the present, the increasing demand for services is expected to result in a user income of over \$400,000 by fiscal year 1972. (Summary information in contained in Table 1.)

¹/₁ Funded by contract with the National Science Foundation.

The SIE data bank is the only one of its scope and size in the world that deals with information about current research activities applicable to planning and management purposes. It is the only source of coherent and comprehensive information that can quickly define and describe the broad multidisciplinary and multiagency (government and private) programs of immediate national importance.

In mid-September 1970, an ad hoc committee was convened to review the current effectiveness of SIE and to identify what it should and could be doing to increase its value. This group was composed of distinguished users representing both government and private organizations in the biological and physical sciences. Recommendations from the Committee are:

1. The SIE has been an effective information exchange organization in spite of many difficulties from an administrative and fiscal point of view.
2. There is both the need and the opportunity for the SIE to provide new kinds of services in response to changing requirements for information.
3. The SIE should continue under a single management organization with an adequate budget, and an advisory committee that would guide the SIE in relation to user requirements.
4. The Smithsonian Institution should become the manager of the SIE.
5. The Smithsonian Institution should take the initiative in recommending to the Office of Management and Budget and the appropriate Congressional committees that the Institution receive an adequate federal appropriation in the form of a special account for the support and continued improvement of the SIE as a national information exchange service for both the federal and non-federal community.
6. The SIE staff, working with the Smithsonian staff, should draft a charter expressing the recommendations of the Users Committee.
7. Ways and means must be considered to strengthen the research record received by SIE. This was considered by all members to be the weakest link in the whole program.
8. More complete coverage of all research grants or contracts awarded by the various Federal agencies should be obtained.
9. Reports of non-Federal supported research on a national scale as well as foreign research reports should also be obtained.

TABLE 1

SCIENCE INFORMATION EXCHANGE
PROPOSED BUDGET FY 1972

	<u>TOTAL COST</u>	<u>PARTIAL DATA BANK COST ^{1/}</u> (Federally Appropriated Funds)	<u>SUPPLEMENTAL INPUT AND OUTPUT COST ^{2/}</u> (User Charges and Other Income)
Personnel	\$1,366,654	\$ 956,000	\$410,654
Salaries	1,242,413	869,090	373,322
Benefits	124,241	86,910	37,332
Contract Services			
Travel	10,000	3,000	7,000
Transportation of things	3,000		3,000
Rents			
Telephone	9,000	9,000	
IBM	285,000	197,500	87,500
Xerox	12,000	12,000	
Building	96,500	96,500	
Other	7,000	7,000	
Printing	5,000		5,000
Other Services			
Equipment maintenance	4,000	4,000	
Other	35,000	15,000	20,000
Supplies	20,000	15,000	5,000
Acquisition of Capital			
Equipment			
TOTAL	<u>\$1,853,154</u>	<u>\$1,315,000</u>	<u>\$538,154</u>
SI Services	171,846	85,000	86,846
GRAND TOTAL	<u>\$2,025,000</u>	<u>\$1,400,000</u>	<u>\$625,000</u>

^{1/} Partial cost of receiving, processing, and computer storing of research information as requested in appropriation. Total cost of input is estimated at \$1,600,000. This difference must be made up if possible by user charges or other sources of income.

^{2/} Includes additional money needed for input and to cover cost of out put services. In light of a fiscal year 1970 income of only \$211,000 and a projected income of only \$375,000 in fiscal year 1971 it seems unlikely that user charges and other income will exceed \$425,000 leaving a potential deficit of some \$200,000 in fiscal year 1972. Such a deficit could require the Exchange to cease its existence around the middle of fiscal year 1972 if an additional source of income is not available.

I. VOLUME STATISTICS FOR Sept. 69 - Aug. 70

INPUT			OUTPUT (BILLED)									
TOTAL INPUT THIS PERIOD 5,591			P-2 Routine Inver-	P-3 Standard Rptg	P-4 Negotiated Requests	P-5 Investigator Searches (Not Names)	P-6 Accession No. Retrieval # of Numbers	P-7 Quartermly Mailings (Not Quost'a.)	P-8 Automatic Distinction (Not NRPs)	P-9 Historical Searches (Not Reg's.)		
DISTRIBUTION OF CURRENT FILE												
FEDERAL	FY 69	FY 70										
Agriculture	10,260	6,461	39									
ABC	1,231	987	51			768			91			
Commerce	1,606	1,754	7		5	64	41					
Congress			45									
D O D	15,527	11,551	6									
Air Force	4,771	3,979	318									
Army	4,921	4,221	4									
Navy	4,561	2,050	2									
Other	1,274	1,301	(15)			9	6				1	
HEW	18,928	14,817	61									
HUD	140	20	134	10	6	402	286	31	23826		1	
Interior	5,136	5,228	1479		2							
Justice	73	119	19		1							
Labor	285	201	3								160	
NASA	3,832	652	3				3					
NSF	6,897	5,015	4				14					
Smithsonian	542	16	21	3	2	1270		1				
State	14	92	2	2	1							
TVA	33	38	1				56					
Treasury	6	4	1									
Transportation	1,484	1,590	6									
VA	5,411	3,411	6									
Other	167	133	120		1	53	48		12181		1	
			28		4				296			
TOTAL FEDERAL	71,572	52,089	755	19	22	2566	455	32	36554	3		
NON FEDERAL	20,027	11,974	1278	4	12	121	209	46		13		
GRAND TOTAL	91,599	64,063	2033	23	34	2687	664	78	36554	16		
No. of NRPs (Documents)			208207	2887	16716	3689	609	17244	36554	2644		

TOTAL WORKLOAD STATISTICS BY UNITS
SIE FISCAL YEAR 1970
(Invoiced)
Compared with FY 1969

	Routine Inverted Searches Q.	Standard Reports	Negotiated Requests	Investigator Searches	Accession # Retr.	Quarterly Mailings Q.	Automatic Dist.	Historical Searches
	<u>P2</u>	<u>P3</u>	<u>P4</u>	<u>P5</u>	<u>P6</u>	<u>P7</u>	<u>P8</u>	<u>P9</u>
September	144	2	4	216	84	3	5540	-
October	167	2	5	168	63	10	3874	1
November	164	3	4	273	1	-	5075	-
December	153	2	2	149	34	2	4606	3
January	159	-	2	121	1	10	958	-
February	198	1	2	280	15	3	1907	4
March	186	3	6	236	11	2	2209	-
April	182	3	1	223	99	18	3200	1
May	178	1	4	226	44	1	1625	1
June	155	1	3	252	31	-	3158	2
July	202	4	1	244	9	29	1468	4
August	142	1	0	299	272	3	2934	0
Total	2,030	23	34	2,687	664	81	36554	16
FY 1969 Total Invoiced Workload	716	4	5	10,218	179	0	15464	0
% Increase	182%	475%	580%	72% Decrease	271%	--	136%	--

Output Services - During SIE FY 1970

1 September 1969 - 31 August 1970

<u>Category of Service</u>	<u>Total \$ Income</u>	<u>Total No. Requests</u>	<u>Total No. of Requests</u>	
			<u>% Fed.</u>	<u>% Non-Fed.</u>
P2 Routine Inverted Subject & Administrative Searches	\$ 64,348	2,030	37%	63%
P3 Standard Report	4,216	23	83%	17%
P4 Negotiated Requests	56,399	34	65%	35%
P5 Investigator Searches	7,693	2,687	95%	5%
P6 Accession # Retrieval	726	664	69%	31%
P7 Quarterly Mailings (Selective Dissemination)	3,113	81	41%	59%
P8 Automatic Distribution	3,655	36,554	100%	0%
P9 Historical Searches	2,313	16	19%	81%
Contracts	69,060	10	100%	0%
Total	<u>\$211,523</u>			

DOLLAR INCOME BY TYPE OF SERVICE
SIE FISCAL YEAR 1970

Month	User Charge Income									Contract Income	GRAND TOTAL	CUMULATIVE TOTAL
	P2	P3	P4	P5	P6	P7	P8	P9	P2-9 Total			
1969												
September	4,780	536	4,988	660	87	-	555	-	11,606	7,392	18,998	18,998
October	5,180	392	7,818	516	66	300	387	100	14,759	5,862	20,621	39,620
November	4,730	612	1,760	834	5	-	508	-	8,449	12,751	21,200	60,819
December	4,930	342	634	447	46	285	461	1,328	8,472	7,268	15,740	76,561
1970												
January	5,175	-	8,866	369	5	335	95	-	14,846	18,234	33,080	109,639
February	6,060	158	1,627	849	23	140	191	256	9,304	4,611	13,915	123,554
March	6,195	598	8,132	747	14	125	221	-	16,032	-	16,032	139,583
April	5,100	406	9,711	669	104	685	320	33	17,028	947	17,975	157,558
May	4,845	158	2,240	690	48	95	162	60	8,299	2,163	10,462	168,020
June	4,635	191	3,919	759	35	-	316	187	10,041	3,566	13,607	181,627
July	6,843	625	6,700	547	13	1,050	147	349	16,273	2,131	18,404	200,031
August	5,875	197	4	606	280	98	293	0	7,353	4,135	11,488	211,521
TOTAL	64,348	4,215	56,399	7,693	726	3,113	3,656	2,313	142,461	69,060	211,521	AV. 17,627/mo.

LIST OF CATALOGS PREPARED BY THE SCIENCE INFORMATION EXCHANGE

Volume 1. "Water Resources Research Catalog 1965"

- a. Part I. Federally Supported Research in Progress
- b. Part II. Non-Federally Supported Research in Progress. (Prepared for Office of Water Resources Research, U.S. Department of the Interior, Washington, D. C.) Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, Part I. \$2.50; Part II \$1.00

Volume 2. "Water Resources Research Catalog" 1966. (Prepared for Office of Water Resources Research, U.S. Department of Interior, Washington, D. C. (Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402)

Volume 3. "Water Resources Research Catalog." 1967 (Prepared for Office of Water Resources Research, U.S. Department of Interior, Washington, D. C.) Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402 \$6.75.

Volume 4. "Water Resources Research Catalog" 1968. (Prepared for Office of Water Resources Research, U.S. Department of Interior, Washington, D.C.) Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402 \$8.50

Volume 5. "Water Resources Research Catalog" 1969. (Prepared for Office of Water Resources Research, U.S. Department of Interior, Washington, D.C.) Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (In Printing Process)

"Marine Research" - FY 1968 (Prepared for Executive Office of President. National Council on Marine Resources and Engineering Development) Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402 \$5.50

"Air Force Research Resumes 1966" (Prepared for Office of Aerospace Research, U.S. Air Force) Clearinghouse, U.S. Department of Commerce, Springfield, Virginia 22151

"Air Force Research Resumes 1968" (Prepared for Office of Aerospace Research, U.S. Air Force) Clearinghouse, U.S. Department of Commerce, Springfield, Virginia 22151

"National Bureau of Standards - Research and Development Projects - FY 1965" (Prepared for National Bureau of Standards, U.S. Department of Commerce, Washington, D.C.)

"Water Resources Thesaurus 1966" (Prepared for Office of Water Resources Research, U.S. Department of Interior, Washington, D.C.) Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 \$2.00

"Outdoor Recreation Research 1966" (Prepared for Bureau of Outdoor Recreation, U.S. Department of Interior, Washington, D.C.) Supt.Documents,Wash.,D.C. 1967

"Outdoor Recreation Research 1967" (Prepared for Bureau of Outdoor Recreation, U.S. Department of Interior, Washington, D.C.) Supt.Documents,Wash.,D.C. 1968

"Outdoor Recreation Research 1968" (Prepared for Bureau of Outdoor Recreation U.S. Department of Interior, Washington, D.C.) Supt.Documents,Wash.,D.C. 1969

"Abstracts of Research and Demonstration Projects in Social Welfare and Related Fields 1964" (Prepared for Bureau of Family Services, Welfare Administration, HEW, Washington, D.C.) Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 70 cents.

"Viral Tumorigenesis Report" (Published semi-annually by National Cancer Institute, National Institutes of Health, HEW, Bethesda, Maryland 20014)

"Medical Research in the Veterans Administration, FY 1965"

"Current Population Research 1966". (Prepared for National Institutes of Child Health and Human Development, National Institutes of Health, HEW, Bethesda, Maryland 20014)

"Current Population Research 1967" (Prepared for National Institutes of Child Health and Human Development, National Institutes of Health, HEW, Bethesda, Maryland 20014)

"Current Population Research 1968". (Prepared for National Institutes of Child Health and Human Development, National Institutes of Health, HEW, Bethesda, Maryland 20014) In Printing Process

"Recent Research in Public Administration - A Reference 1969" (Prepared for Office of Metropolitan Development, U.S. Department of Housing and Urban Development, Washington, D.C. 20410) Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 \$1.25

"Recent Research in Intergovernmental Relations 1968". (Prepared for Office of Metropolitan Development, U.S. Department of Housing and Urban Development, Washington, D.C. 20410)

"Recent Research in Planning 1968". (Prepared for Office of Governmental Relations and Planning Assistance, U.S. Department of Housing and Urban Development, Washington, D.C. 20410)

"International Trade Research" (Prepared for Export Strategy Staff, U.S. Department of Commerce, Washington, D.C.) Department of Commerce January 1970

"Neurological Disease and Blindness Catalog 1969" (Prepared for National Institute of Neurological Disease and Blindness, National Institutes of Health, HEW, Bethesda, Maryland 20014) Published by NIH April 1970

"Sustaining University Program, NASA, 1969" (Prepared for Office of University Affairs, National Aeronautics and Space Administration, Washington, D. C. 20546) Published by NASA April 1970

"Housing and Residential Building Research and Technology Catalog" (Prepared for Office of Urban Technology and Research, U. S. Department of Housing and Urban Development, Washington, D. C. 20410) In Printing Process

"Food Distribution Research Projects in Progress 1969" Food Distribution Research Society, Hyattsville, Maryland February 1970

Note: New catalogs on Water Resources Research, Outdoor Recreation, and Population Research are currently in progress.

NATIONAL MUSEUM OF NATURAL HISTORY

Dr. RIPLEY. That concludes my general opening testimony, Senator.

Senator BIBLE. Very well, Mr. Secretary.

For the Museum of Natural History you propose an increase of \$1,308,000 in your program. The first of these is a request for \$576,000 increase, along with 34 positions, which you indicate is to correct "internal imbalances."

Will you please explain what total amount you will have for this purpose, and indicate how you propose to use the increase which you request?

Dr. RIPLEY. I would like to introduce Dr. Cowan again, the Director of that museum, and ask him to explain that in detail.

Senator BIBLE. Very well.

Dr. Cowan.

SUPPORT SHORTAGES: PERSONNEL, EQUIPMENT, AND MATERIALS

Dr. COWAN. The \$576,000 for support shortages that we have spoken about in the budget request, has three aspects: making up of personnel shortages, 34 positions, \$204,800; making up shortages in all other objects, equipment, and materials that have been deficient to the extent \$171,200; and a nonrecurring item of \$200,000 for equipment. This amount will begin to catch up with what has been deficient in the last several years, the nonrecurring equipment item, if allowed, of course, will not be in the base next year.

These 34 support positions I spoke of a moment ago are museum technicians, secretaries, research aides, clerk-typists and illustrators. I will say to you very quickly that the justification for adding these people to our staff is simply to make more efficient use of our highly trained and skilled scientists.

Senator BIBLE. How many people do you have in the Museum of Natural History?

Dr. COWAN. We now have 106 professional research scientists, with about 136 of the types I just mentioned, illustrators, clerk-typists, technicians, and research assistants.

Senator BIBLE. That would mean the total personnel is over 200 persons?

Dr. COWAN. On appropriated funds, in the science departments, yes.

Senator BIBLE. What do you mean on appropriated funds? Do you have others there paid by a different source?

Dr. COWAN. There are employees compensated under grants and contracts for special projects, and personnel on other private funds. There are also Federal administrative personnel which I did not include in the total above. The total of authorized positions for the whole museum is 271.

MUSEUM HOURS

Senator BIBLE. How many hours a day do you keep open now in the Museum of Natural History?

Dr. COWAN. Ten a.m. to 5:30 p.m. for most of the year. We are open every day in the year except on Christmas Day. There is often a period in the spring of about 2 months, during which we are open from

10 a.m. to 9:30 p.m. That is the early spring season when vast numbers of young people are coming from colleges and high schools across the country to get acquainted with natural history.

Senator BIBLE. Do you stay open on Saturday?

Dr. COWAN. Yes, sir.

Senator BIBLE. I know you are pretty much open all the time. Do you have an independent breakdown of visitors to the Museum of Natural History?

Dr. COWAN. Yes. If a rough estimate will do at this time, about three and a half million.

Senator BIBLE. In the last fiscal year?

Dr. COWAN. Yes.

SECURITY PROBLEMS

Senator BIBLE. What is your guard problem, or security problem, in the museum? How many guards do you have?

Dr. RIPLEY. We can give you that figure, Senator. The guard force is broken down by building. It is part of our general buildings management. We can supply that figure.

Senator BIBLE. Maybe you could offer it for various museums over which you have responsibility. What is the total? Maybe that is a better way, rather than breaking it down.

Dr. RIPLEY. Sixty-eight guards, Mr. Chairman.

Senator BIBLE. That is for the entire Smithsonian?

Dr. RIPLEY. That is the number just for the Natural History building?

Senator BIBLE. Do you have thefts from that building?

Dr. COWAN. Yes, sir; there have been thefts, and there have been instances of vandalism. We are constantly under the threat of an increase of damage or loss.

Senator BIBLE. Has anyone ever threatened to blow up your place?

Mr. COWAN. Yes, sir; there have been numerous threats in the form of telephone calls that come in, saying a bomb is in the building.

Senator BIBLE. I can't see why anyone would want to blow up the Museum of Natural History.

Dr. RIPLEY. We had a gentleman last year who came in and decided that a stuffed snake in one of the exhibits was his particular enemy. I don't know why he picked on the snake. Maybe it related to one of the problems that the Senators have been discussing recently with respect to alcoholism. He produced a large hammerlike instrument, proceeded to break the glass and went in and dragged the snake out and attacked it personally.

Fortunately he was heard conducting this one-man vendetta.

Senator BIBLE. It is a good thing he gave you a warning.

Dr. RIPLEY. Eventually a guard was able to come up and disarm him, but this is the kind of thing that can happen among otherwise placid surroundings.

Senator BIBLE. I can't see why they would take it out on you. You never could quite figure why they would take it out on stuffed animals.

1971 REPROGRAMMING REQUEST

You had a reprogramming request approved last year of \$145,000. What did this provide?

Dr. RIPLEY. I think Mr. Jameson could tell us that.

Mr. JAMESON. Mr. Chairman, we asked for a reprogramming of approximately \$240,000. One committee agreed to the full amount; the other committee agreed to about \$100,000 less than that.

The approximately \$200,000 that we were able to provide to the Museum of Natural History went to correct some of the kinds of support shortages that Dr. Cowan has been describing, some additional technician help, some additional money for laboratory supplies and materials, the replacement of certain pieces of laboratory equipment such as microscopes, which are very much required in the basic areas of systematic taxonomic biology, as well as in some of the programs of the geologists. For instance, our geologists in the Museum of Natural History have been engaged in the analysis of certain of the lunar samples.

But basically it went to provide a certain small measure of additional support to the professional people.

Senator BIBLE. Very well.

INCREASE FOR ENVIRONMENTAL STUDIES

You asked for an increase of \$532,000 and 28 positions for environmental studies. How much in total dollars and in total positions will this give you?

Dr. RIPLEY. I think Dr. Cowan is prepared to speak to this.

Dr. COWAN. He is speaking of the Museum. Are you not, sir?

Senator BIBLE. The Museum.

Dr. COWAN. That would be 349 in fiscal year 1972.

Senator BIBLE. 349?

Dr. COWAN. Yes, the presently authorized 271 positions plus the 28 positions for environmental studies, the 16 needed in the data processing program, and the 34 new support positions discussed earlier.

Senator BIBLE. What are the total dollars?

Dr. COWAN. The amount requested for the environmental program would add about half a million dollars to the fiscal year 1971 base for the Museum.

Senator BIBLE. The total funding level would be \$4.2 million, if granted in full?

Dr. COWAN. The total funding, including the nonrecurring item would be about \$5.7 million.

ENVIRONMENTAL STUDIES IN THE MUSEUM OF NATURAL HISTORY

Senator BIBLE. How does that activity differ from those you propose under the Office of Environmental Sciences?

These are environmental studies within the Museum of Natural History. What are the differences?

Dr. COWAN. Yes, I will speak to this initially.

The Museum of Natural History, throughout its history, even before it was called a separate Museum of Natural History, has been involved and deeply concerned with the generation of baseline environmental information. This is the kind of data that ecologists and environmental researchers must use to solve our environmental problems.

I invite your attention to a volume published in 1898, "Fishes of the North and Middle America." This is the type of environmental information and upon which solutions to these problems must be built, and which the museum is so experienced at developing.

EFFECTS OF DDT ON REDUCING BIRD POPULATIONS

I will point out quickly an application of this kind of data. This collapsed Brown Pelican egg which looks like it ought to be 100 years old, was collected 2 years ago. These lovely looking Brown Pelican eggs are about 100 years old. The difference is DDT in the environment.

The museum can help with the solution of environmental problems with this information in truly unique ways, using the national collections and the associated libraries and staff.

METHYL MERCURY IN FISHES

More recently, the museum was asked to determine the presence of methyl mercury in fishes. Traces of the heavy metal were found in specimens of food fishes collected almost 100 years ago. It was found that even then it was present in amounts now regarded as dangerous. It is this kind of baseline information we generate for application by all scientists who need it for the solution of real problems in a real world.

EDP APPLICATIONS

I want to mention one more activity. Last year in one of our data processing applications, we drew out information on a small file of fossils which are important in oil exploration. We have now put this data into the computer in such a way that it is very useful to researchers studying these fossil materials, and terribly important to the oil companies in searching for oil.

Now with respect to the institutional environmental program, the museum has only a small part. I think probably here I should defer to the Assistant Secretary for Science, Dr. Challinor.

OFFICE OF ENVIRONMENTAL SCIENCES

Senator BIBLE. We will be happy to have him amplify that answer. Maybe he wants to tell us about the Office of Environmental Science.

Dr. CHALLINOR. The Office of Environmental Science was essentially concerned with the interbureau activity of the entire institution. These are the bureaus of the Institution that are concerned with science.

We have requested in our budget this year support for the environmental science program in the amount of \$375,000. This will be coming up, I expect, later. If you want, I will be happy to discuss this now to show how this is distinguished from the request of the Museum of Natural History.

Senator BIBLE. I think you might as well develop it now, because it is being commented on within the Museum of Natural History, and I am just trying to determine in my own mind the distinction between the two areas.

Dr. CHALLINOR. Mr. Chairman, the Institution, as you know, contains a number of separate bureaus, all of which are working in various facets of the environment; but we are primarily concerned in our environmental program with seeing how the combination of these bureaus, acting together, can produce the sort of information which is most valuable, that no one bureau could produce by itself.

In other words, we have the Astrophysical Observatory and we have the Radiation Biology Laboratory, which apply techniques, which can be added to those records kept by, and the research done by, the scientists in the Natural History Museum, for example. In combination they can then produce answers to very complex environmental questions that we will need to know the answers to, in our efforts to explain what is happening to the globe.

The Institution itself through the Astrophysical Observatory and through its studies of solar radiation hitting our entire globe, can treat the entire world, not only just the animals and fish and insects, for example, that the Natural History Museum is primarily concerned with, but the entire solar spectrum and what is happening in the upper atmosphere.

To do this, we started last year and received an appropriation for \$150,000 to get this program organized.

In our efforts and in our meetings we have established the program. It is actually underway, and the Smithsonian, using primarily its own facilities has therefore set up an interbureau program on the environment.

In other words, we start with the sun hitting the outside of the atmosphere and try to learn how this influences the trees and plants growing on the surface of the earth. We are specifically concentrating now, as we have outlined in our budget request, on shallow water marine environments and on the terrestrial environments in a tropical forest. This will allow us to use our facilities in Panama and at the Chesapeake Bay Center.

PRIORITY OF PLANNED NATURAL HISTORY PROJECTS

Senator BIBLE. We will query you in just a minute. I simply want to ask Dr. Cowan one additional question, and I think this clears up our major questions on the Museum of Natural History.

On page A-17 to A-19, you list a number of studies, which you propose to undertake with the increase requested. Please give me the priority of those studies. That can be placed in the record. Those are the only questions I have for you, Dr. Cowan. That can be submitted for the record. The record will be kept open for several days.

(The information follows:)

ENVIRONMENTAL STUDIES

(28 Positions, \$474,000)

The unity of knowledge about the environment is more than a cliché: As the physical and living components are inseparably interdependent in a balanced environment, so also is the information about it. For this reason, setting priorities is extremely difficult among the following five ecological programs, listed in priority order, for which the National Museum of Natural History requests funds:

- (1) Animals of the Sea (7 positions) \$121,000
- (2) Origins of Oceanic Ecological Systems (9 positions) \$104,200
- (3) Studies in Terrestrial Biology (6 positions) \$74,400
- (4) Changing Climates and Man's Adaptations (3 positions) \$124,400
- (5) Study of Deteriorating Freshwater Habitats (3 positions) \$50,000

The first two of these programs constitute a broadly based approach to the needs for basic data to solve nationally recognized problems of coastal areas. Every study to establish priorities for attacking environmental deterioration has identified (most recently in the proposed Inter-American Institute of Ecology research program) estuaries and shallow coastal waters as two areas most threatened by human activities because of solid wastes, industrial wastes, growing recreational uses, etc. Such deleterious materials or uses affect the breeding and nursery portions of the life cycle of many marine organisms, some of major economic significance. The 1970 report of the President's National Council on Marine Resources and Engineering Development (pp. 28-29) included an emphatic statement of need for research in the coastal zones:

"Basic scientific information enables us to define the ecological base from which we operate; to understand the natural forces at work; to predict harmful and beneficial consequences of man's activities on the environment. From this comprehension, we can employ better engineering and technology to maintain water quality, control beach erosion, and create modern ports and harbors. With such information, we can generate criteria to define options and make choices among alternative regulatory actions, public and private uses of the seas and coastal lands, and costs. This information is fundamental to the political decisions needed to manage the environment." modern and prehistoric, lie at the heart of this misdirection of terrestrial resources. Repeatedly, studies of soil organisms, for example, have been urged by major national planning groups, such as the U.S. portion of the International Biological Program.

The Museum is uniquely qualified by its rich collections and associated staff to undertake these programs that will provide the basic baseline data required for solutions of environmental problems wherever they occur.

* * * * *

The Crystallography Program described on page A-19 is a top priority item, separate from the environmental programs listed above. The \$58,000 requested will be used to purchase a critically important instrument for study of the crystal structure of meteorites, lunar samples, and other materials by our geologists researching the origin of the earth and solar system.

OFFICE OF ENVIRONMENTAL SCIENCES

Senator BIBLE. Now, Dr. Challinor, going back to the Office of Environmental Sciences. Is that a new office?

Dr. CHALLINOR. No, sir; that function has been in effect for the last 5 years, I believe. We have changed the title of this particular office of the Smithsonian so that it now combines the Office of Limnology and Oceanography, and the Office of Ecology.

Senator BIBLE. What is limnology?

Dr. CHALLINOR. That is the study of fresh water ponds and lakes, as opposed to marine biology which deals with salt water.

Senator BIBLE. What activities do you have within the Office?

Dr. CHALLINOR. We run the Smithsonian Marine Sorting Center which is located at the Washington Navy Yard and employs about a score of people who are primarily concerned with sorting marine specimens ranging from fish down to microplankton for various museums, and for scientists who are doing research in oceanography.

Senator BIBLE. Is that what you call your oceanographic sorting center?

Dr. CHALLINOR. Yes, sir.

Senator BIBLE. How many persons do you have in your sorting centers now?

Dr. CHALLINOR. I have the number right here. We have 11 technicians and seven professionals.

Senator BIBLE. What is the total number you have in your office? Maybe I should ask that first.

Dr. CHALLINOR. In the Office of Environmental Science, there are 34 positions allowed. We have all 34 aboard now. We have in the sorting center a total of 18, seven professionals and 11 technicians, or what we call nonprofessionals.

We have in addition now at the Chesapeake Bay Center, 7 miles below Annapolis, a director and three people working there, for a total of four.

In the Office itself, we have five professionals housed in the Natural History Museum, and five secretaries for a total of 10, which makes a subtotal of 32. We have one man on now, a scientist, on a 9-month temporary basis. And we have the director of the sorting center in Tunis who is assigned to the home office. This is a total of 34.

Senator BIBLE. Thirty-four is the total number within the Office of Environmental Sciences. Do I understand that correctly?

Dr. CHALLINOR. Yes, sir.

Senator BIBLE. All right. Place in the record a table showing the increases in personnel which have been provided over the past 10 years. Are part of those in the Tunisian office?

(The information follows:)

OFFICE OF ENVIRONMENTAL SCIENCES

Totals available

	<i>Positions</i>
Fiscal year 1972 estimated-----	42
Fiscal year 1971 estimated-----	34
Fiscal year 1970 estimated-----	23
Fiscal year 1969 actual-----	*23
Fiscal year 1968 actual-----	*23
Fiscal year 1967 actual-----	*23
Fiscal year 1966 actual-----	*23

*1966 was the first year that activities in environmental sciences were separately identified in the budget presentation. From then until 1969, these activities were identified as the Office of Ecology and the Office of Oceanography and Limnology. In 1970, they were combined as the Office of Environmental Sciences. Starting in fiscal year 1967, one employee was stationed at the Mediterranean Sorting Center.

SORTING CENTER IN TUNISIA

Dr. CHALLINOR. The Tunisian office operates with foreign currency in Tunis, and I will be happy to place in the record the number of people we have there.

Senator BIBLE. Is that solely on counterpart funds?

Dr. CHALLINOR. Except for the aforementioned director, all of the other 29 employees are paid solely from counterpart funds.

USE OF FOREIGN CURRENCIES FOR TRAVEL

Senator BIBLE. When you bring a man over from the Tunisian office into the United States, do you use hard dollars?

Dr. CHALLINOR. We can pay to transport him from Tunisia out of the soft currencies. While he is here in Washington he would have to be paid per diem out of dollar funds of the Office of Environmental Science.

CHESAPEAKE BAY CENTER FOR ENVIRONMENTAL STUDIES

Senator BIBLE. How many people do you have at the Chesapeake Bay facility?

Dr. CHALLINOR. We have a total of four paid out of appropriated funds, the director, a secretary, a resident caretaker, and one technician.

Senator BIBLE. Do you operate that in conjunction with Johns Hopkins University?

Dr. CHALLINOR. This is a consortium arrangement. The property is owned by the Smithsonian Institution, having been purchased by private funds raised by the Institution. The scientific research that

takes place there is carried out through a cooperative arrangement with the University of Maryland and Johns Hopkins University. The ongoing research, then, involves scientists from all three institutions.

Senator BIBLE. How much does the University of Maryland contribute to this consortium?

Dr. CHALLINOR. Time and personnel, but no dollar funds to maintain the buildings.

Senator BIBLE. How much personnel?

Dr. CHALLINOR. There are probably four scientists there now. These persons come and go, depending on their research schedules, and there are perhaps somewhere between six or 10 or 12 graduate students working with them, depending on the courses being taught at the time.

Senator BIBLE. They put no hard dollars in that?

Dr. CHALLINOR. No hard dollars into maintaining the building and other operating costs of the facility.

Senator BIBLE. How about Johns Hopkins?

Dr. CHALLINOR. They have contributed some funds.

Senator BIBLE. How many full-time professor or scientists do they have there?

Dr. CHALLINOR. The professors do not work there full time. They would be working there only to the extent this would be part of their field work. Of the six professors from Johns Hopkins, for example, Professor Sladen is interested in the whistling swan which winters on the Chesapeake Bay. He has been conducting an elaborate tracing experiment to see where they go in the spring when they fly north to Canada. We help him by making our laboratory facilities available. I should mention that the bay center has received direct dollar support for its facilities totaling \$6,500 from Johns Hopkins in fiscal year 1971.

Senator BIBLE. How many people would they have there?

Dr. CHALLINOR. Two full-time and three to five part-time on his particular project. These would be both graduate students and undergraduate students and technicians.

SECURITY AT BAY CENTER

Senator BIBLE. Is the security officer that you asked for this year the same one which was denied to you last year?

Mr. CHALLINOR. Yes, sir, Mr. Chairman. As you know, this area is being built up very, very quickly. It is amazing that we have been able to assemble as much undeveloped land as we have in the past 5 years because of the great population increases in the area. Vanadalism and people shooting woodchucks or foxes, or even the ducks, have become an increasing problem. It is necessary to have a continuing presence there to let people know that we are physically occupying it 24 hours a day. For example, sometimes we have snap-traps hidden to catch small rats and mice and we must be continually concerned about innocent children coming in and stepping on such a trap.

Senator BIBLE. Can you give me an estimate of the damage?

Dr. CHALLINOR. This is a little difficult. I would estimate we are talking about less than a thousand dollars at this particular point.

Our need for a guard is more to prevent the disturbance of the wild-life and our experiments. We set up mist nets to catch birds, for example, and people will come in and tear them down. Before we bought this tract it was used as a local automobile stripping area. This is where cars are stolen, brought down side roads and stripped of batteries, tires, etc. When we took this place over, we had to spend over a year trying to get rid of all the automobile junk.

It takes quite a little while to get word out to the public that they no longer can come in as before. We have built barriers and put chains across roads but to be reasonably effective we really need a permanent guard.

CENTER RESEARCH WORK

Senator BIBLE. What type of work do you do there?

I thought this was more or less a function of the Fish and Wildlife Service.

Dr. CHALLINOR. Mr. Chairman, the Fish and Wildlife Service is concerned with how to protect and produce more fish for fishermen or how to insure a greater harvest of ducks for hunters. We are more concerned with "why is the grass green," or when you abandon a cornfield, what sort of trees come in, and in what succession.

As opposed to the Fish and Wildlife Service, which has its own priorities, we are involved with basic research that may or may not produce valuable economic benefit. Specifically seeking such benefits would be secondary to what we see as our mission, which is trying to understand what makes the earth tick.

Senator BIBLE. Have you asked your computer service how many other departments and agencies are trying to find out why the grass is green?

Dr. CHALLINOR. No, sir; for I am using this as an illustrative example only.

Senator BIBLE. I know what you are trying to do. I am trying to figure out how many others are trying to do the same thing. Why don't you put it in your fellow doctor's computer and come up with an answer?

Dr. CHALLINOR. We might be able to submit this question and it would be interesting to see what comes out.

Senator BIBLE. Maybe he wouldn't even charge you for it.

Dr. CHALLINOR. Maybe we could get a cut rate at least.

Senator BIBLE. I am not faulting the project. I am just wondering how much duplication there is.

Dr. CHALLINOR. The existence of the Bay Center has actually helped reduce duplication of effort, because we are the only facility on the Chesapeake that is able to integrate the research of many different disciplines. During fiscal year 1971 for example the Bay Center has received \$533,000 worth of gifts, grants, and contracts from such U.S. agencies as NASA, AEC, EPA, and the U.S. Geology Service. The latter is stationing two full-time scientists at the center to work on water quality of the Chesapeake.

We have another interesting aspect down there which concerns our ability to operate a research facility like this which is compatible with the needs of our neighbors who range from prosperous tobacco farm-

ers to impoverished black people who work on the surrounding farms. This has raised sociological problems.

Senator BIBLE. Is the Smithsonian studying that?

Dr. CHALLINOR. We are now unwillingly involved because a small housing project is planned to be built on the watershed adjacent to our facility. The State government will authorize a secondary sewer treatment and we are concerned that mere secondary treatment emptying into the stream that flows through our center will affect our research results. We are now working with local authorities to get a tertiary treatment plant or some acceptable substitute. This is how we run into day-to-day problems of people rather than just plants and trees, which we are more happy with, but this is the reality of trying to conduct research when surrounded by a rapidly developing area.

Senator BIBLE. Doesn't the Environmental Protection Agency do this?

Dr. CHALLINOR. They do some of the same kind of things, but our problem in this case is one that is applied to a specific example of a potential conflict between people's life style and research results. I think it is going to serve as a model of how to meet these conflicts and HUD and EDA's Community Environmental Section have both expressed a strong interest in how we plan to resolve it.

Senator BIBLE. I don't want you to take over all of the work of the Environmental Protection Agency because we just created them.

Dr. CHALLINOR. I assure you, Mr. Chairman, this is on a much smaller scale.

Senator BIBLE. Let's see if I have any other items to be directed to you gentlemen.

SMITHSONIAN ASTROPHYSICAL OBSERVATORY

Who tells us about the Smithsonian Astrophysical Observatory?

Dr. RIPLEY. I have asked Dr. Whipple, the Director, to come to speak to that.

Senator BIBLE. Come forward, Dr. Whipple. You are asking \$533,000 to initiate development of a large astronomical telescope.

What is its purpose?

LARGE OPTICAL TELESCOPE

Dr. WHIPPLE. The purpose is to provide a new, large telescope, primarily for infrared work, and also to pave the way for still larger telescopes in a reasonable budget range, the point being that with non-conventional optical methods we can enormously reduce the cost of large telescopes, and this provides, then, a method of providing a large telescope at a very small cost. This project would lay the foundation for other people to lead on to larger optical telescopes.

I will illustrate why the nonconventional optics are so much less expensive than the conventional ones by the diagram that I have just handed Mr. Eaton.

Senator BIBLE. I have it right here before me.

Dr. WHIPPLE. There are in existence, made by the Corning Glass Works, 6-foot mirror blanks. You see the six red circles I have marked

at the top of the diagram. They would provide an instrument with an effective diameter of 175 inches.

Senator BIBLE. Don't explain the technical part to me. Just tell me what you plan when you have this all done?

Dr. WHIPPLE. We will find out about the infrared sources in the universe. Some are in great gas clouds; you might call them the nurseries, or the lying-in hospitals for new planetary systems like our own. We can see these bodies like the planetary nebula from which we believe the solar system developed.

Also, we find that quasars, which are the most distant energy sources in space, can be studied through infrared.

Perhaps you have read of the new galaxy that was located by infrared telescopes. We have an opportunity, then, to make a large telescope to fill this particular need of infrared astronomy, for which there is no suitable large telescope available, and it will lead the way for other large instruments.

OTHER AGENCY INVOLVEMENT IN ASTROPHYSICS

Senator BIBLE. How many other Government agencies are there which have any responsibility in the astrophysical field, such as you are just describing?

Dr. WHIPPLE. There is a certain amount in the military, in the Air Force, on solar work particularly, and in the Navy, on time and stellar position. The National Science Foundation is the major contributor to this field, while the National Aeronautics and Space Administration supports ground-based astronomy. I think that these are all of the Government agencies who have much interest in astronomy.

Senator BIBLE. How long has the Smithsonian had a responsibility in the observatory and astronomical telescope field?

Dr. WHIPPLE. Since 1890, sir.

Senator BIBLE. It had the primary function?

Dr. WHIPPLE. I wouldn't say the primary function. The Smithsonian started out studying solar radiation from high areas where the atmosphere is clear.

Senator BIBLE. You mentioned the Defense Department. Are there any other agencies that study the stars and the planets and the galaxy?

Dr. WHIPPLE. I may have missed some agency in the Government, but I think those are the primary ones by all means.

OBSERVATORY FUNDING

Senator BIBLE. How much money is devoted to that type of work within the Smithsonian?

Dr. WHIPPLE. We have—

Senator BIBLE. What is the total budget this year?

Dr. WHIPPLE. It is a little hard to answer that, sir, but we have just built at Mount Hopkins, Ariz., a 60-inch telescope of a low-cost type which is the forerunner of the type of thing we can do, and that is now in continuous use.

We have a number of smaller instruments for specialized purposes, such as tracking satellites and for observing the meteors around the world, and the observatory which has become very effective in solar

observation. Our total appropriation for fiscal year 1971 is slightly over \$2.0 million.

NAME AND COST OF THE TELESCOPE PROJECT

Senator BIBLE. Have you given this a name?

Dr. WHIPPLE. Our name is the Six Element Reflector, because instead of using one very large mirror, which is extremely heavy to give rigidity, we are splitting it up into six small mirrors, which are much thinner. The mirror blanks are in existence, having been built by the Corning Glass Works. They are of very much lighter weight than the mirrors that are normally used.

In this fashion, we can reduce the weight of the primary mirror by a factor of about 5 to 10 times, and, therefore, reduce the total cost to very reasonable proportions, about \$2.5 to \$3.0 million dollars for the entire instrument.

Senator BIBLE. \$2½ to \$3 million?

Dr. WHIPPLE. Yes, for the entire instrument.

Senator BIBLE. Is that over and above the \$533,000?

Dr. WHIPPLE. It is included. The idea is that the \$533,000 is to initiate this effort. This would include detailed engineering complete with blueprints, so we can put out the specifications for fixed-price bidding for the telescope mounting, the dome, housing and related facilities for this instrument. Then we can initiate the actual contracts for the work.

We expect to follow this with a similar amount, about \$500,000 in the following 2 year's budget, to a total of some \$1.5 million.

Senator BIBLE. That is the total cost including the \$533,000?

Dr. WHIPPLE. Yes, for our contribution. We are working cooperatively with three of the University of Arizona's departments.

Senator BIBLE. How much will they contribute to the project?

Dr. WHIPPLE. About a comparable amount.

TELESCOPE LOCATION

Senator BIBLE. Where will it be located in Arizona?

Dr. WHIPPLE. There are two likely sites. Mount Lemmon, north of Tucson, or our Mount Hopkins site, south of Tucson.

Those are among the best sites we know in continental United States for infrared observatories.

OBSERVATORIES OPERATED BY U.S. GOVERNMENT

Senator BIBLE. How many observatories are there in the United States operated and maintained by the U.S. Government?

Dr. WHIPPLE. By the U.S. Government?

Senator BIBLE. By the U.S. Government.

Dr. WHIPPLE. The Naval Observatory has two of them, one of these is in Arizona, and one is in Washington, D.C., which has become a smaller operation, and, of course, the National Science Foundation operates the Kitt Peak National Observatory.

Senator BIBLE. Where is that one?

Dr. WHIPPLE. That is located southwest of Tucson, Ariz.

Senator BIBLE. What is the big telescope in Palomar?

Dr. WHIPPLE. That is operated under the Carnegie Institution.

Senator BIBLE. Isn't there a Lick Observatory around San Francisco?

Dr. WHIPPLE. Yes. That is operated by the University of California, with public and private funds.

Senator BIBLE. You say the Navy has two, and the National Science Foundation has some?

Dr. WHIPPLE. Yes, Mr. Chairman. Their great one is at Kitt Peak and they are developing an observatory in Chile. They also have a large national radio astronomy observatory in West Virginia.

Now, for solar observatories, the Air Force operates one in New Mexico, and that is a rather large installation, and there is one, now, I think, operated by ESSA for solar work in Boulder, Colo. They are for different purposes, sir.

Senator BIBLE. That is substantially all of them, is it?

Dr. WHIPPLE. I think so, Mr. Chairman.

Senator BIBLE. Well, you can examine it, and if you want to correct the record, you may.

Dr. WHIPPLE. Speaking of telescopes for observing stars, it is limited to the three, I believe. I will check into that to be sure I haven't missed any major ones.

Senator BIBLE. How much is devoted out of the Smithsonian dollar to that purpose, did you say?

Dr. WHIPPLE. We estimated that last year we spent about \$175,000 to operate the Mount Hopkins Laboratory, out of our total appropriation of some \$2 million.

NUMBER OF ASTRONOMERS IN THE UNITED STATES

Senator BIBLE. How many astronomers are there in the United States?

Dr. WHIPPLE. I don't know the precise number, but I believe there are some 2,500, because there are approximately 2,800 members of the American Astronomical Society including some foreign astronomers and junior members.

Senator BIBLE. I was always fascinated by the study of astronomy from my grammar school days, when I heard a lecturer. I was going to be an astronomer until I found they weren't going to get paid.

Dr. WHIPPLE. I became interested in the same way, and never worried about being paid. But I have been.

Senator BIBLE. I hope you have been. [Laughter.]

I understand you are preeminent in your field. It is nice to talk with you.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

Now, for the Smithsonian Tropical Research Institute, you propose an increase of \$236,000, of which \$176,000 of this is for the institute's program. Included in the \$60,000 increase for pay is \$21,000 for pay differential received by U.S. employees working in the Canal Zone. A portion of this increase is to provide the employees a rent subsidy. Do you pay this in cash to the employees, or will you provide quarters?

Dr. RIPLEY. We would propose to pay this in cash, as we have no quarters.

Senator BIBLE. All right. What pay differentials do the employees in the Canal Zone receive?

Dr. RIPLEY. Other agencies provide housing in the zone at very low cost in addition to a tropical wage differential of about 15 percent. Agencies with offices in Panama provide foreign quarters allowances for their employees who must establish households locally. Foreign quarters allowances average 54 percent higher than the tropical wage differential. In addition, they are untaxable, in contrast to the wage differential, which is included in taxable compensation.

We seek to offset the inequity to our staff, who receive only the wage differential, by providing housing cost support at least equivalent to the direct dollar differences between the tropical differential and foreign quarters allowances for those families required to establish households in Panama.

For 13 eligible staff on board in 1971, this dollar difference would amount to \$18,382 in total, increasing proportionately with additional positions in fiscal 1972.

Subsidy plan alternatives allowable under existing regulations will be reviewed thoroughly prior to acceptance and adoption of our plan, which would not be retroactive.

Senator BIBLE. Now, are the manual employees of the Smithsonian Tropical Research Institute Panamanians or U.S. citizens?

Dr. RIPLEY. They are usually Panamanians, Mr. Chairman.

BUDGET REQUEST INCREASE

Senator BIBLE. Your program shows a substantial increase over fiscal year 1971. Where will you use the increase in that program?

Dr. RIPLEY. We want to add to our backup support activity in the institute in somewhat the same way, Senator, that you have already heard Dr. Cowan describe the shortfall in backup activity in the Museum of Natural History.

We need two field aides and a launch operator.

Senator BIBLE. What else do you need?

Dr. RIPLEY. An electrician and a messenger for all our facilities, a manager, and a janitor for the marine station facilities, and a maintenance laborer for Barro Colorado Island.

CROWN OF THORNS STARFISH

Senator BIBLE. We spoke last year of the Crown of Thorns starfish. Have you made progress in bringing that predator under control?

Dr. RIPLEY. No, sir, we have not. This project, which was involved in special legislation, is in the fiscal year 1972 budget under the Department of the Interior, with the implication that should the funds be granted, a proportion of the funds, approximately half, would be allocated to the Smithsonian for our own basic research.

Senator BIBLE. Did you have any money for that purpose last year?

Dr. RIPLEY. No, sir.

Senator BIBLE. Oh, you did not?

Dr. RIPLEY. We did, by chance, discover that the Crown of Thorns starfish had spread right across into the eastern Pacific, and was found off the western coast of Panama, where we discovered a coral reef, un-

known previously, but this was in connection with the operations of our Tropical Research Institute, and we did not undertake any control measures.

Senator BIBLE. As I recall that item, it was primarily found in Hawaii originally.

Dr. RIPLEY. Guam, the barrier reef of Australia, and in the Micronesia area.

It appears to occur where there has been human disturbances of the reefs, things like blasting, or dredging, or construction. In this area there is an imbalance created and then the Crown of Thorns takes over.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

Senator BIBLE. You have a contract for research on the effects of oil pollution on shoreline habitats. You are asking for \$34,000 and two positions to implement this contract. Is any of your cost under this contract reimbursed by the Federal Water Quality Administration?

Mr. RIPLEY. Mr. Chairman STRI does have a contract from the Federal Water Quality Administration. It is for oil spill damage studies. The \$34,000 request is for general administrative support.

RADIATION BIOLOGY LABORATORY

Senator BIBLE. Last year four additional positions were provided for you at the Radiation Biology Laboratory, and this year you are asking another six positions. Why are your increases in personnel in every bureau or section continually necessary?

Dr. RIPLEY. We are still phasing into the new quarters in Rockville, Md.; Senator, and we request part of this for this phasing proposition.

Part of the construction funds involved are for the completion and equipping of five environmentally controlled rooms at the station, and six positions, costing \$61,000, are concerned with the environmental biology program of the laboratory. These are a radiation physicist, an environmental physiologist, a laboratory technician, two aides, and a refrigeration mechanic.

We also request support funding to cover related program costs.

I might point out, Senator, that in our efforts to weld the bureaus of the Smithsonian into common objectives in connection with environmental science, we have just had a conference of some of the bureau representatives, presided over by the Assistant Secretary for Science, in which we attempted to see how the astrophysical observations from an observatory like Mount Hopkins could help the radiation biology people who are working with much lower levels of the atmosphere, and we think that there may be new research to be derived from studies of the magnetosphere, which is above the earth's nearest layer of atmosphere where thin trails of clouds may significantly be affecting radiation down on earth.

This would have an applied interest in connection with studies of supersonic transport, for example.

Senator BIBLE. We reported the SST out of Appropriations today, 17 to 5, and we will have it up on the floor Wednesday. I don't know what will happen. The House defeated it yesterday 217 to 204. That

may be one place we save some money if they defeat the SST come Wednesday or Thursday of next week. But we will wait to see.

NATIONAL AIR AND SPACE MUSEUM PERSONNEL

Now we turn to the National Air and Space Museum.

How many positions are authorized, and how many are working?

Dr. RIPLEY. At present, Senator, we have authorized positions of 41, and we are requesting an increase of three.

Senator BIBLE. How many curatorial personnel are aboard now?

Dr. RIPLEY. Seven curatorial positions at present.

Senator BIBLE. And how many administrative?

Dr. RIPLEY. Eleven administrative, and 17 museum specialists. These are largely engaged in aircraft restoration and conservation work out at Silver Hill.

Senator BIBLE. How many are at your Air and Space Museum in Washington, and how many are out at Silver Hill?

Dr. RIPLEY. Eighteen employees are on the Mall, 16 are at Silver Hill, and one is at our 24th Street building.

Senator BIBLE. How do you divide it?

Dr. RIPLEY. The curatorial and administrative personnel are presently on the Mall. Most of the subprofessionals are out at Silver Hill.

Senator BIBLE. I understand that, but what were the respective numbers?

Dr. RIPLEY. Seven curatorial, 11 administrative, and 17 museum specialists, Mr. Chairman.

Senator BIBLE. All right. I didn't have that firmly in mind.

TOURS AT SILVER HILL FACILITY

Are you still conducting the tours at your Silver Hill facility?

Dr. RIPLEY. Yes, sir.

Senator BIBLE. How often do you conduct them?

Dr. CHALLINOR. They have been conducted once a week on Fridays with volunteer help. It is turning out that because of the threats that we mentioned earlier, Mr. Chairman, about blowing up museums and things like this, we are not sure we will be able to continue these tours. There was nothing in the budget for taking people through the facility at Silver Hill, but we were able for about 2 months to get highly qualified volunteers to lead people through.

Because the material is extremely valuable, and some of it is exposed, especially in the buildings, we are unwilling to let unaccompanied visitors walk through particular areas. This is where the restoration takes place, and all the materials we need to reassemble the planes are stored. We can continue to do these tours if we control the flow of persons on a low-volume basis. There isn't much room to let people run through by themselves.

Senator BIBLE. Am I to understand these were conducted in the past without cost?

Dr. CHALLINOR. Yes, sir.

Senator BIBLE. How many visitors did you have?

Dr. CHALLINOR. Probably two or three score, certainly less than a hundred visitors. We didn't advertise these tours because of the prob-

lem I mentioned. We have had two tours each Friday, limited to about 12 persons each.

ENCYCLOPEDIA OF NORTH AMERICAN INDIANS

Senator BIBLE. How many personnel do you have working on the Encyclopedia of North American Indians?

Dr. RIPLEY. I believe we have four people currently assigned full-time to work on the encyclopedia with another two or three part-time. We really want to get firmly under way with this project now. The initial work, Senator, has been outlining the scope of the task and attempting to line up the editors and the particular contributors who are national in scope.

These contributors on a 17-volume work are going to come from all over the country, and each one will be the recognized expert in his field.

What we will be doing essentially is some of the writing with our own professionals, and the coordination, editing, and eventual publication.

We hope to have this encyclopedia completed by July 1976. There is a great deal of enthusiasm among the professionals for such a project.

By May of this present year we anticipate that we will have made all the writing assignments with the probable total of about 850 contributors, most of whom, of course, will be volunteers.

The first return of manuscripts is expected to be this summer, and all the manuscripts will be received and revised by May 1974. We hope for a 1976 publication, in time for the Bicentennial. We have an increasingly heavy workload to do the editing and compilation of these volumes, and it is for this we are requesting a copy editor, a research assistant, and a typist, and funds for support of the volume editors and contributors. It is \$48,000 in total.

ANTHROPOLOGY GRANTS

Senator BIBLE. One last question before we recess. What is the total amount that you will have for the small grants for urgent anthropology research with the increase of \$17,000? What is the total amount there?

Dr. RIPLEY. An increase of \$17,000 for our urgent anthropology should bring us up to—I will have to wait a minute and try to figure it out.

SUBCOMMITTEE RECESS

Senator BIBLE. We are going to take a recess until 1:45. Between now and a quarter to one, you figure up the answer and put it in. (See page 2230) I think we can finish up with an hour this afternoon.

(Whereupon, at 12:30 p.m., the subcommittee was recessed, to reconvene at 1:45 p.m.)

(AFTERNOON SESSION, 1:45 O'CLOCK, FRIDAY, MARCH 19, 1971)

Present: Senator Bible.

SMITHSONIAN INSTITUTION

STATEMENT OF S. DILLON RIPLEY, SECRETARY—Resumed

CENTER FOR SHORT-LIVED PHENOMENA

Senator BIBLE. Gentlemen, the hearing will resume.

The Center for Short-Liver Phenomena is supported and funded for what amount, Secretary Ripley?

Dr. RIPLEY. Thank you, Mr. Chairman. I would like to ask Dr. Challinor to speak to that, if I may.

Senator BIBLE. Just answer the question. You don't need to make a long involved answer. I know what you do. You told me that last year.

Dr. CHALLINOR. An amount of \$37,000 in appropriated funds.

Senator BIBLE. How many positions is that?

Dr. CHALLINOR. One position, Mr. Chairman.

Senator BIBLE. And you ask for an increase of \$90,000 and three positions?

Dr. CHALLINOR. Yes, sir.

Senator BIBLE. You say you have difficulty in securing money for this operation from outside sources. How much have you been able to secure?

Dr. CHALLINOR. May I ask Mr. Jameson, who has the figure for that?

Senator BIBLE. Very well.

Mr. JAMESON. In fiscal year 1970 we had approximately \$58,000 from the National Aeronautics and Space Administration for a special project they were interested in. In addition, we had approximately \$14,000 of subscription income.

In current fiscal year, 1971, the support from other agencies, included a small amount from the Ford Foundation and UNESCO for special projects.

Senator BIBLE. What I want you to do is give me the total amount?

Mr. JAMESON. This year it will be about \$40,000, sir.

Senator BIBLE. For the record, supply the sources, whether they are Government or private.

Mr. JAMESON. Yes, sir.

(The information follows:)

Center for Short-Lived Phenomena—sources of financial support

1970—

Salaries and expenses appropriation (Federal)-----	\$11, 000
National Aeronautics and Space Administration ¹ (Federal)-----	58, 000
Subscriptions (Private)-----	14, 000

83, 000

1971—

Salaries and expenses appropriation (Federal)-----	\$37,000
National Aeronautics and Space Administration ¹ (Federal)-----	3,000
Subscriptions (Private)-----	20,000
Ford Foundation ¹ (Private)-----	7,000
UNESCO ¹ (Private)-----	2,000
Atomic Energy Commission (Federal)-----	5,000
	<hr/> 74,000

¹ For special projects not general operations.

PROPOSED APPROPRIATION OF FUNDS TO REPLACE OUTSIDE SUPPORT

Senator BIBLE. How much of your proposed increase is to be used to replace the contract support heretofore received from NASA and the National Science Foundation?

Mr. JAMESON. We estimate, sir, that an effective operating budget level for the Center for Short-Lived Phenomena would be about \$150,000, and we believe that we will raise through subscription income approximately \$25,000 in 1972. So, in effect, the \$125,000, approximately, that we are asking for is to replace outside income other than subscription income.

Senator BIBLE. Very well.

NATIONAL ZOOLOGICAL PARK

Now the National Zoological Park.

I assume that is you, Dr. Reed, if you want to come forward.

Dr. REED. Yes, sir.

Senator BIBLE. What is the total amount that you have for the operation and maintenance of the National Zoological Park, first in the current fiscal year, fiscal year 1971?

Dr. REED. At the present time, we have appropriated \$3,025,000 for the operation and maintenance of the National Zoological Park.

Senator BIBLE. Is that all within this budget?

Dr. REED. Yes, sir.

Senator BIBLE. Do you receive any contributions from the District of Columbia now?

Dr. REED. We do not receive any contributions from any other source than the Smithsonian Institution.

Senator BIBLE. Private or otherwise?

Dr. REED. We have received occasional small bequests and gifts of money, but nothing to really support the zoo.

NUMBER OF ZOO EMPLOYEES

Senator BIBLE. How many personnel do you have aboard now?

Dr. REED. We have about 230 permanent employees on the rolls, as of this morning. Our authorized total is 249.

Senator BIBLE. What, in your judgment, is the correct funding level to maintain the National Zoo?

You are asking for an increase of \$585,000.

Dr. REED. Yes, sir.

Senator BIBLE. That gives you another 48 people?

Dr. REED. Yes, sir; that is correct.

1967-1971 APPROPRIATIONS HISTORY

Senator BIBLE. Provide for the record by appropriation activities as presented in your budget justification the numbers of the personnel, beginning with fiscal year 1963, if you have records.

Do you have records from 1963 that are available to you? It was then under the District of Columbia Government.

Dr. REED. Yes, sir.

Senator BIBLE. You have been the head man of the National Zoo how long?

Dr. REED. I believe it is about 14 years now.

Senator BIBLE. All right. Beginning with fiscal year 1963 and running through the current fiscal year, both as to amounts and personnel. (The information follows:)

APPROPRIATION—AUTHORIZED POSITIONS AND FUNDS BY ACTIVITIES

Year	Office of director		Maintenance and operation		Living vertebrate		Scientific research		Animal health		Total	
	Posi- tions	Amounts	Posi- tions	Amounts	Posi- tions	Amounts	Posi- tions	Amounts	Posi- tions	Amounts	Posi- tions	Amounts
1963..	11	\$96,170	122	\$788,136	76	\$567,094	1	\$9,300	-----		210	\$1,470,200
1964..	11	107,370	122	863,958	77	614,901	1	11,127	-----		211	1,597,356
1965..	12	121,500	122	878,342	76	641,523	2	23,635	-----		212	1,665,000
1966..	10	107,380	124	975,375	75	652,323	3	29,422	-----		212	1,683,314
1967..	10	124,930	131	1,054,587	83	725,803	3	36,780	-----		227	1,942,100
1968..	11	146,042	138	1,221,903	86	843,603	2	31,852	-----		237	2,243,400
1969..	28	377,769	126	1,165,366	85	900,300	5	50,593	-----		244	2,494,028
1970..	60	814,000	99	975,000	77	874,000	5	72,000	5 \$67,000		246	2,802,000
1971..	61	909,000	100	1,114,000	77	962,000	6	84,000	5 81,000		249	3,150,000

TRAVEL EXPENSES

Senator BIBLE. You seem to ask for more money for travel. Why do you have to put more money for travel?

Dr. REED. This travel money is for the scientific and technical staff to attend various meetings of their disciplines. There are about 15 meetings a year which we should be represented at to broaden the knowledge of our people working at the zoo as well as to disseminate knowledge that we have gathered about the animals and about zoo operation and maintenance.

The money is also used for the travel to acquire specimens for the zoo, actually going out and getting the animals. Small amounts of the money are used to travel to pick up and escort animals from, say, New York, or from other places.

SIZE OF ANIMAL COLLECTION

Senator BIBLE. What is your zoo population animal-wise?

Dr. REED. At the present time, the zoo population is about 825 species, that is different kinds of animals, representing 52 families. The total number varies from about 2,800 to 3,000 individual animals.

Senator BIBLE. How many?

Dr. REED. Between 2,800 to about 3,000. Spring is coming on, and we will be hatching out a lot of birds shortly.

Senator BIBLE. You put birds in there?

Dr. REED. Yes, sir; the total includes mammals, birds, reptiles and a very few insects.

Senator BIBLE. Do you keep insects as an attraction?

Dr. REED. Yes, sir.

Senator BIBLE. What kinds?

Dr. REED. We have kept such things as tarantulas and the large imperial scorpion.

They are quite an attraction, especially when visitors can get close to them and be safe.

Senator BIBLE. I have seen them in their native state. I am satisfied.

CONDITION OF ZOO

I am periodically receiving mail from that effervescent and active Mr. Ripley and others about the decaying state of the zoo. What are the facts about the zoo? Is it in as bad shape as the articles I read occasionally and people write me about, schoolchildren, and Mr. Ripley, and others?

I suppose you have to say yes as long as he is saying yes.

Dr. REED. I would like to think he said yes because I have told him how bad it is and have shown him.

Senator BIBLE. That is why, I guess you wanted me to come to see the animals at twilight when they are quiet.

Dr. REED. I would like to show you some very fine and very wonderful animals, and if you happen to see a lion house built in 1890 that is about to fall down—

Senator BIBLE. Paul Eaton and I will be out as soon as we can. What are your hours?

Dr. REED. The zoo is open from 9 a.m. until 4:30 p.m. on weekdays and until 6 p.m. on weekends. After April 26 it will be open until 6 p.m. The hours for you, sir, are anytime.

Senator BIBLE. That is just red carpet treatment. That is just trying to butter me up like Mr. Ripley always is.

Dr. REED. I promise not to butter you up, just show you the facts.

Senator BIBLE. Just show me the facts. Paul Eaton and I will be out there as soon as we can.

TRAVEL BUDGET

What is your total travel budget?

Mr. REED. At the present time, the total travel budget is \$8,000. We are asking for an increase of \$10,000 for a total of \$18,000. This is for the entire zoo for all purposes. There are about 25 of the technical and professional staff that should travel and be represented at various professional meetings throughout the year.

ZOO RATINGS

Senator BIBLE. Do all you zoo directors get together and then give priority as to which is the best zoo in the United States, and you always put yourself first? Other than your own, which do you rate second, or does that get you in trouble with your brethren?

Dr. REED. Other than my own, I would say the San Diego Zoo is one of the very best in the country and the world.

I don't think we should underrate the Sonora Desert museum in Tucson, Ariz. It represents the fauna and flora of the Sonora Desert and does a good job.

The great zoos are Bronx, Brookfield, Detroit, San Diego, St. Louis, Milwaukee, Los Angeles, and Philadelphia.

SUGGESTED ZOO TELEVISION PROGRAM

Senator BIBLE. Have you ever given consideration to giving a program like Marlin Perkins? Does he get money out of that for the zoo?

Dr. REED. I don't know how much the zoo has gotten out of it, but Mr. Perkins has gotten a considerable amount of money out of it.

Senator BIBLE. Maybe that would get money for you; maybe NBC, on the other animals in Washington. Just by way of suggestion. A lot of people think we run a better zoo up here than you do. You might even turn that into a major production, and you might make money off it.

Dr. REED. It could well be, sir.

Senator BIBLE. That is a very interesting series. I like to look at that. Miss Adams was my administrative assistant for a few years, and she is now with Mutual of Omaha, and I see her on TV.

PLANS FOR LA PLATA, MD.

What do you operate at La Plata, Maryland?

Dr. REED. At La Plata, Md., we are not operating anything as yet. It is our desire under the broad authority we have for going into zoological endeavors to establish a country breeding zoo. There are many animals throughout the world that are faced with extinction. We have difficulty bringing animals into this country, meeting the very wise and very just laws of the Department of Agriculture to protect our domestic livestock, so we need a farm-type zoo where we can breed larger herds of these animals, and also devote ourselves to the scientific research and study of the behavior, the life habits and requirements, and needs of these animals.

This site would serve the National Zoo and the other zoos in the Nation as a reservoir for some of the more endangered and exotic animals, as well as the source of behavioral and other scientific studies of these animals.

The piece of property at La Plata belongs to the military at the present time. It is being demobilized. It is 506 acres. We consider it an excellent site because it has a good, stout, chain link fence all around it. It is close to Washington; it is easily accessible to us; and we could use this once it became our property as an excellent supplementary or auxiliary zoo for the purposes I mentioned.

Senator BIBLE. Does the FCC still have an interest in that site?

Dr. REED. Yes; the FCC and the Smithsonian Zoo are still interested in the site.

Senator BIBLE. When might you resolve that?

Dr. REED. It was hoped it would be resolved some time this month, but obviously it will be some time next month when the question is resolved.

CONSTRUCTION AND COSTS AT LA PLATA

Senator BIBLE. If the site is acquired, what construction would you propose that is not included in the present budget?

Dr. REED. In the present budget, we would be utilizing some of our men who are already on the rolls, some of our equipment, some of our feed, and some minor repairs and construction. In future budgets.

we would probably wish to construct simple farm-type sheds for the animals and some rather simple fences within the grounds, because the perimeter is well protected at the present time. So there would be this minor, more or less farm-type construction for the animals at La Plata.

Senator BIBLE. What is the total estimated cost?

Dr. REED. It is not to exceed \$200,000 in the 1973 budget, and probably will never be more than 10 percent of the total Zoo budget. It is more or less of a ranch-type operation rather than a public exhibition zoo.

NATIONAL COLLECTION OF FINE ARTS POSITIONS

Senator BIBLE. Very well. Last year your budget request for the National Collection of Fine Arts showed that, if the full request was approved, as it was, you would have 60 positions, and this year your estimate shows your 1971 base is 70 positions. How did you acquire the additional 10? We gave you 60 and apparently you are coming up with 70. Where did you get the 10 extra; by what authority?

Dr. RIPLEY. Mr. Blitzer, would you answer that?

Mr. BLITZER. I am sorry, Senator, I was just coming up.

Senator BIBLE. Let me restate. Last year you asked for 60 positions, and we granted your request. This year your base is 70 positions.

Mr. BLITZER. I would have to call on Mr. Bradley or Mr. Jameson for that answer.

Mr. JAMESON. Part of the additional positions, Mr. Chairman, are for the Renwick Gallery. In addition, we have had to increase the National Collection of Fine Arts staff slightly as they are expanding their public exhibition halls, filling up their share of the building, as well as curating new collections. This was accomplished within the approved level of funding.

Senator BIBLE. Where did you get the authority to get the other 10?

Mr. BRADLEY. Mr. Chairman, in retrospect, the authority does not exist; and I think that I should say that it is part of my responsibility to catch these things, and this should have been submitted to this committee. I have, sir, looked into it. Our reprogramings have been very well received, and in the past 3 years we have had a total of \$2 million reprogramed out of the total of \$90 million appropriated. In retrospect, sir, the answer to your question is that we should have submitted this to you and to the other side for approval.

Senator BIBLE. But you didn't.

Mr. BRADLEY. We didn't.

Senator BIBLE. That is what I was getting at. As long as we insist on reprogramming, we don't want to pick up items like this, where you go ahead and do reprogramming. Did you supply the answer for the record I asked before recess?

URGENT ANTHROPOLOGY GRANTS

Dr. RIPLEY. I have the answer. We had in 1970, \$8,000 for urgent anthropology grants and in 1971, \$13,000 estimated. We are requesting an additional \$5,000, for a total of \$17,000 in our 1972 budget.

Senator BIBLE. Very well. That supplies the answer to that question.

NATIONAL PORTRAIT GALLERY POSITIONS

Now, I would ask the same question of the National Portrait Gallery, where you have 27 positions. No additional positions are requested, and yet the 1971 budget which you have furnished us shows you have 10 additional positions.

Where did you get that; the same way?

MR. BRADLEY. Mr. Chairman, I think this is the same case as with the Collection of Fine Arts. This is a matter that should have been submitted to the committee. But as with the National Collection of Fine Arts, we did not exceed the approved level of funding.

Senator BIBLE. How many other instances do you have other than those two?

MR. BRADLEY. I would say, very few, Mr. Chairman. We have had reprogramming specifically approved and, generally, while we have 45 different line items before you, sir, we try to treat each one reasonably close to the amount that is approved. So this is a point of difficulty and we do try to live with the 45. In general, we are very, very faithful to it.

Senator BIBLE. Well, I just want you to be more faithful. I don't want you to come in and say, "We are awfully sorry, we should not have done it, but we did it." Let's not have it happen again.

RENWICK GALLERY STATUS

What is the status of the Renwick Gallery?

MR. BLITZER. We hope construction on the inside of the Renwick Gallery will be substantially completed by June of this year, and an opening will be possible by the fall.

HIRSHHORN MUSEUM BUDGET REQUIREMENTS

Senator BIBLE. The Joseph Hirshhorn Museum has a requested program increase of \$587,000 and 3 positions. Furnish for the record the positions now authorized for the museum.

(The information follows:)

Joseph H. Hirshhorn Museum and Sculpture Garden

Authorized Positions

- Director - responsible for overall direction of the Hirshhorn Museum
- Secretary to the Director - stenographer, typist, handles telephone calls, initiates correspondence
- Curator - supervises all curatorial, exhibit and educational programs
- Associate and Assistant Curator - responsible for the cataloguing and exhibition of 7,000 paintings and sculpture; responsible for preparation of the catalogue for the opening exhibit; develop cultural and educational programs
- Librarian - establishes and maintains up to date research, photographic and microfilm library
- Museum Assistant - assists in researching data to document required background on various works in the collection
- Clerk Typist - assists in preparation of catalogue for opening exhibit and other clerical duties
- Historian - Assists in researching and developing historical data in the preparation of suitable provenances. Coordinate in organizing of exhibit displays. Answers research inquiries and arranges loans of art works
- Administrative Officer - provides services to the director in the management of the museum, pertaining to personnel, budget preparation and execution, and procurement activities
- Secretary to Administrative Officer - maintains control of obligations and invoices, typing, answering correspondence
- Registrar - supervises activities at the warehouse, where there are 6 employees involved in preparing collection for exhibit
- Museum Assistants (5) - (located at site where collection is stored)
Personnel are responsible for registration and inventory of all paintings and sculpture in Collection. Coordinates conservation, photography, framing and other services relating to cataloguing and preparing the collection for exhibition.
- Clerk Typist - furnishes clerical and typing support to personnel at warehouse and eventually serve as secretary to Registrar
- Contract Clerk - Assists in the preparation of pertinent data required for issuance of requisitions and contracts covering general procurement and particular items for building furnishings.

STORAGE SCREENS

Senator BIBLE. An increase of \$400,000 is proposed for the design and production of storage screens. What are those?

Dr. RIPLEY. These are to allow the storage of paintings and graphics in the collection in place when the building is built. These are sliding screens, Mr. Chairman, which go in and out on an overhead track and allow you to utilize the space appropriately. They are the equivalent of library stacks.

Senator BIBLE. Very well.

You say your average cost of framing a picture is \$200. Do you do this in-house or by contract?

Dr. RIPLEY. By contract.

Senator BIBLE. What type of restoration do you have to accomplish with respect to sculptured pieces in the Hirshhorn Museum?

Dr. RIPLEY. The sculpture is restored from time to time by treatment. From time to time the exterior sculpture shows accretions like moss, but it is a chemical process. We have to make sure this is not affecting the quality of the bronze surface. Waxy coatings are applied to preserve it. This restoration is done by experts under our contract.

ARCHIVES OF AMERICAN ART

Senator BIBLE. You have a new activity in the Archives of American Art. Please describe this activity.

Mr. BLITZER. I would describe that, Senator as a new form of a traditional activity. It came about when the Smithsonian was able, in May of 1970, to acquire the greatest single collection of documentary material about the history of the arts in America.

This represented an enormous increase in our resources for doing what the National Collection of Fine Arts and the National Portrait Gallery in particular have been instructed by their legislation to do, and had always done, to study the history of art in this country.

Senator BIBLE. How did you support it in the current fiscal year?

Mr. BLITZER. By contributions from those two museums, the National Collection of Fine Arts and the National Portrait Gallery. Half of its expenses are paid for privately.

Senator BIBLE. What is the total expense?

Mr. BLITZER. We are requesting \$175,000, and we hope as much as \$200,000 in private funds will be raised for it.

Senator BIBLE. How much is the expense of taking care of American Archives —

Mr. BLITZER. An amount of \$175,000 in the current fiscal year, Mr. Chairman.

Senator BIBLE. The same level?

Mr. BLITZER. Yes, sir; it is at the same level.

Senator BIBLE. Is the Quarterly Journal published with Federal funds?

Mr. BLITZER. No.

Senator BIBLE. Completely private funds?

Mr. BLITZER. As far as I know.

Senator BIBLE. At least, there are no Smithsonian funds in there?

Mr. BLITZER. Not so far as I know.

Senator BIBLE. Is that verified? How about your auditor or your budget man? Are there any Smithsonian funds—

Mr. JAMESON. The Quarterly Journal is funded entirely by private funds, Mr. Chairman.

Senator BIBLE. All right.

PRESERVATION OF RECORDS IN THE NATIONAL MUSEUM

You are always starting new programs, Dr. Ripley. You say you start a program which is a long-term project of duplicating and protecting records of the U.S. National Museum. What is the import of that?

Dr. RIPLEY. The Office of the Registrar of the National Museum, Mr. Chairman, is one of our oldest and most honorable activities. It consists of the central accession records of the National Museum of Natural History and the National Museum of History and Technology.

We are asking for one position and \$50,000 for protection of these accession records and for shipping and mail room requirements.

Senator BIBLE. What will the average funding level of that be?

Dr. RIPLEY. The present base level is \$301,000 for the entire Office of the Registrar operation, which consists of approximately 29 persons.

These records and documents, many of which we inherited from the U.S. Government, go back to 1842, including the accessions of the original National Institute, which was supported by Congress prior to the formation of the Smithsonian.

Senator BIBLE. How much will it cost? What will it be in the foreseeable future? Will this be an average funding level for several years?

Dr. RIPLEY. About \$25,000 a year.

Senator BIBLE. About \$25,000 a year.

ANACOSTIA NEIGHBORHOOD MUSEUM POSITIONS

For the record, supply the breakdown of four positions that you are asking for the Anacostia Neighborhood Museum, and describe them by responsibility and grade.

(The information follows:)

ANACOSTIA NEIGHBORHOOD MUSEUM

REQUESTED ADDITIONAL POSITIONS

Four additional positions are requested in the fiscal year 1973 budget for the Anacostia Neighborhood Museum.

1. Assistant to the Director (GS-11)—Responsible for community relations, research on urban problems to be translated into exhibits, fund raising, counsel to outside groups interested in establishing similar neighborhood museums, and general administrative matters assisting the Director.

2. Class Instructor (GS-5)—Responsible for planning and conducting museum-related courses in language skills for community children.

3. Class Instructor (GS-4)—Responsible for planning and conducting museum-related courses in graphic arts and design for community children.

4. Custodian (WG-3)—Responsible for general museum cleaning and maintenance.

DONATIONS TO THE ANACOSTIA MUSEUM

Senator BIBLE. How many donations have you received for the Anacostia Museum to date in fiscal year 1971?

Mr. WARNER. We have received private contributions in this fiscal year, Mr. Chairman, totaling \$191,000.

Senator BIBLE. That sounds pretty good.

From private sources?

Mr. WARNER. Yes, Mr. Chairman.

Senator BIBLE. Is it reasonable to expect to receive a like amount for 1972?

Mr. WARNER. I don't think so, Mr. Chairman.

I will supply for the record the sources and amounts of our private grants since the museum's inception. As Dr. Ripley pointed out at last year's hearings, the record shows that in the beginning we got many general purpose grants to get Anacostia started, but lately they are nearly all for special purposes. We now have special project grants. "Do this project for us," they say.

Senator BIBLE. They want to specify how to use the money?

Mr. WARNER. Yes. Thus these grants give us an overburden and don't contribute to the general operating expenses. That is why we ask for two teachers this year for the everyday classroom type of activity that is our responsibility.

Senator BIBLE. What is your total cost of operating this museum, both Federal and private?

Mr. WARNER. I would say, sir, total costs are the 1971 base of \$125,000, the \$191,000 received so far this fiscal year from private sources, plus about \$40,000 from our own private funds. This is because we have some few employees on the private roll at Anacostia, sir.

Senator BIBLE. That gives you a total operating budget of what?

Mr. WARNER. That would be \$125,000, plus \$191,000, plus \$40,000.

Senator BIBLE. About \$365,000.

Mr. WHEELER. It is about \$165,000, leaving out the special additions.

Mr. WARNER. That is true. We should not put in the special grants, \$191,000, so it is \$125,000 plus \$40,000.

Senator BIBLE. That is your total cost of operating the museum, private and Federal?

Mr. WARNER. That is correct, because all of the grants from outside are for special projects.

(The information follows:)

Anacostia Neighborhood Museum Project GrantsFiscal Year 1967:

Agnes Meyer Foundation (general purpose)	\$12,000
Anne S. Richardson Fund (general purpose)	5,000
Carnegie Corp., Whitney Museum (general purpose)	10,200
Neighborhood Campaign (general purpose)	<u>100</u>
Total	<u>27,300</u>

Fiscal Year 1968:

Carnegie Corp., Whitney Museum (general purpose)	15,600
Neighborhood campaign (general purpose)	<u>15,500</u>
Total	<u>31,100</u>

Fiscal Year 1969:

Irwin Sweeney-Miller Foundation (general purpose, matching fund)	21,000
Stern family fund (to help match above grant)	5,000
Bell Aerospace Corp. (to help match above grant)	5,000
Neighborhood campaign (general purpose)	10,000
Cafritz Foundation (matching funds for Irwin Sweeney-Miller grant)	1,000
Strong Foundation (special purpose; education)	15,500
National Endowment for the Arts (special purpose; art education, artist in residence)	7,300
Foundation for Voluntary Service (special purpose; youth opportunity)	11,000
Total	<u>75,800</u>

Total Outside Private Support to the Anacostia Neighborhood MuseumFiscal Year 1970:

Junior League of Washington (special purpose: mobile classroom)	\$ 43,000
Agnes Meyer Foundation (special purpose: salary for community relations specialist)	15,000
Hattie M. Strong Foundation (special purpose: education)	15,000
National Endowment for the Arts (special: artist in residence)	<u>7,300</u>
Total	<u>\$ 80,300</u>

Fiscal Year 1971

Carnegie Corporation (special purpose: urban problems)	\$ 100,000 *
Cafritz Foundation (special purpose: urban problems)	25,000 **
Department of Housing and Urban Development (special purpose: urban problems)	50,000 ***
Whitney Foundation (matching funds for HUD grant)	2,000
Whitney Foundation (special short-term project)	500
Hattie M. Strong Foundation (general purpose education and for use in FY 1972)	<u>13,500</u>
Total	<u>\$ 191,000</u>
Grand Total	\$ 405,500

* Over two years

** Matching funds

*** Matches above grant

OFFICE OF INTERNATIONAL ACTIVITIES

Senator BIBLE. How much of the budget for your Office of International Activities is required for the administration of the foreign currency program in the fiscal year 1972 program?

Dr. RIPLEY. Dr. Challinor.

Dr. CHALLINOR. Mr. Chairman, we have been using the entire amount we have been appropriated, \$125,000, during fiscal year 1971, to administer the foreign currency program and the other activities of the Office. For the foreign currency program alone I would say this uses about 70 percent, 70 to 75 percent of the \$125,000 we were authorized.

Senator BIBLE. Is this about the same amount you had in the past year, the same amount you are projecting for the coming year?

Dr. CHALLINOR. We anticipate that \$108,000 or about 70 percent of the fiscal year 1972 OIA budget will go for the foreign currency program. This year, we got an increase for the first time in 3 years in the total amount of foreign currency granted to us. We went from \$2,316,000 to \$2,500,000. We are asking and have received permission to ask for a total of \$5.5 million for this coming year in excess foreign currencies.

We are asking to administer both the increased, hoped-for approved amount, one new position as a clerk-typist.

INTERNATIONAL EXCHANGE SERVICE

Senator BIBLE. Now, I see that you use your International Exchange Service as an official exchange bureau for all of U.S. publications. Do you receive any reimbursement from other Federal agencies whose publications you handle?

Mr. WARNER. No, sir, we do not. You could say that we receive in-kind help for the return flow, that is, foreign publications coming back to the United States.

Senator BIBLE. But the answer is "No"?

Mr. WARNER. That is correct, sir.

AMERICAN REVOLUTION BICENTENNIAL

Senator BIBLE. Is your Bicentennial of the American Revolution plan coming along very well?

Mr. BLITZER. Yes, Mr. Chairman, I would say it is.

Senator BIBLE. How much have you expended in the preparation of those plans to date?

Mr. BLITZER. We have \$400,000 this year, and we will spend \$400,000 this year.

Senator BIBLE. Do you have anything in this budget for next year?

Mr. BLITZER. Yes, we are asking for another \$400,000.

Senator BIBLE. Another \$400,000. All right.

EXHIBITION ON "WORLD OF LIVING THINGS"

You have an exhibit which you are entitling "World of Living Things," and you say that will cost about \$800,000 and would require 2 years to complete if I understand it correctly.

Dr. RIPLEY. We estimate that we will require about \$775,000 for this exhibition.

Senator BIBLE. In total?

Dr. RIPLEY. Yes, sir; in total. We are asking this year for \$525,000. The exhibition will be completed, provided we have the funds, in 18 months, so we would request the remaining segment in fiscal 1973 to make up the \$775,000.

Senator BIBLE. Very well.

For the record, would you detail exactly what this exhibit will contain and how it operates, with pictures and that sort of thing.

How long will this be maintained?

Dr. RIPLEY. This would be a permanent exhibit.

Senator BIBLE. All right.

(The information follows:)

WORLD OF LIVING THINGS

The WORLD OF LIVING THINGS is the initial attempt to present ideas with objects used as illustrations, rather than the object orientation of many current exhibit halls. It is also the first truly inter-disciplinary exhibit to be planned for the National Museum of Natural History. This Hall is often referred to as our first environmental exhibit because a principal objective is to help visitors develop a new level of awareness of their surroundings. Having generated better informed visitors, the exhibit concludes with the presentation of options for action by the individuals.

The exhibit will contain hundreds of specimens, illustrations and models, each identified and related to each other by the presentation of scientific knowledge. The relationship of the planet earth to the sun as a source of energy will be related to energy flow in a community of cave insects. The insects, some almost microscopic, are shown 25 times life-size to demonstrate highly specialized adaptations for life in a community of darkness.

In a large area of the exhibit, structural and behavioral adaptations of living things--man is included throughout--will be presented, using all types of communication techniques. Another area, "The Preciousness of Life," will provide an introduction to genetics and show man as the super-survivor of other forms of life that have become extinct through natural causes. This will be followed by an intense exhibit presentation illustrating man's ability to upset natural balances, and most importantly, man's ability to recognize what is happening, and to correct it.

The exhibit will end with the best available information on current ecological problems and suggest how each individual can help through action or conservation groups, support of pending legislation and local educational projects.

A great variety of communication techniques will be used, including the most traditional methods of natural history exhibits, and the most recent multi-media and visitor-participation types of presentations. The visitors will travel through the exhibit in a one-way flow. In about one-half of the exhibit, the visitor will pass through controlled circulation areas where multi-media presentations will establish the basic themes of the Hall of Living Things. In the other half of the exhibit, the visitor will be in free circulation areas where he can study larger amounts of more detailed information on the basic themes. The exhibit is self-contained, and no leaflets or audio-devices need be bought or carried by the visitor. Exhibit components will be changeable and periodic up-dating will insure the current value of the exhibit for many years.

The Smithsonian is now using the term "core-exhibition" to refer to those exhibitions that utilize the resources of the collections and expert knowledge of the Institution, and are long-term installations. The World of Living Things is such a core-exhibition.

GRADUATE STUDIES PROGRAM

Senator BIBLE. How much is available in fiscal year 1971 to support graduate studies?

Dr. RIPLEY. Approximately \$387,000 for the graduate studies program.

Senator BIBLE. How much will be available in 1972? That is the total in each year.

Dr. RIPLEY. Mr. Warner, would you answer that?

Mr. WARNER. This year, sir, we are not asking any increase in the graduate studies part of our academic programs but only in the elementary and secondary school program.

Senator BIBLE. No increase in the graduate studies program in 1972 over 1971. It is to be funded at the same level?

Mr. WARNER. I beg your pardon. I was thinking in terms of personnel. We are asking for a program increase of \$55,000 for the number of stipends under our graduate studies fellowship program. No staff increases are asked for. The staff increases we are asking for are for the elementary and secondary school programs. This would be a total of \$42,000 for the graduate studies part.

ELEMENTARY AND SECONDARY EDUCATION PROGRAM

Senator BIBLE. And in elementary and secondary education, you say you will ask for more money for support?

Dr. RIPLEY. That is right, sir.

Senator BIBLE. Give me the 1971 figure and the 1972 figure.

Mr. WARNER. In the elementary and secondary division we are asking for three new positions and a \$60,000 increase. These would be two new "teachers of teachers" or staff associates to teach our volunteer docents and one tour scheduler. This is a person to schedule the many class visits we get at the Smithsonian museums. The fiscal year 1971 amount is \$212,000 and the 1972 amount would be \$283,000.

OFFICE OF THE SECRETARY

Senator BIBLE. In the office of the Secretary you ask for an additional \$46,000. For the record, furnish the detailed justification for those increases. How many personnel does that involve?

Dr. RIPLEY. Two positions and \$46,000.

Senator BIBLE. For the record, you can furnish exactly in detail what those two additional personnel will do.

Dr. RIPLEY. We will do so.

(The information follows:)

OFFICE OF THE SECRETARY

Fiscal Year 1972 Budget Request

For fiscal year 1972, a program increase of \$46,000 is requested to employ an operations officer for the Office of the Under Secretary and an assistant to the Assistant Secretary (Public Service) and to provide funds for general operations. An additional \$12,000 are required for necessary pay.

An operations officer is needed to serve in an advisory capacity to the Under Secretary, and be responsible for the direction, coordination, long-range planning, and development of certain of the administrative and central support activities of the Institution, particularly in their service relationships to the museums, galleries, and laboratories. These services include personnel administration, management analysis, procurement, contract administration, property management, buildings management, buildings security, photographic services, and other administrative and technical support units. A position for the operations officer is requested (\$20,000).

An assistant to the Assistant Secretary (Public Service) to help plan and produce a range of educational materials is requested also. The Smithsonian has many opportunities to cooperate with private industry and organizations in developing educational materials for the public. These materials include such items as pamphlets and books, construction kits, television programs, recording cassettes for home instruction and mini exhibits. Smithsonian activities that would be involved in these efforts include the Press, the Office of Exhibits, the Elementary and Secondary Education Office, and others, drawing upon the vast subject matter resources of our museums, art galleries, laboratories, and the Zoo. This position would cost \$20,000.

Although the Office of the Secretary has developed a management group responsive to the broad and complex nature of the Smithsonian, it currently has a serious deficiency of funding in other objects of expense to enable it to perform in an effective way. This is a request for essential funds for travel, advisory services, supplies and materials, and basic office equipment and furniture (\$6,000).

STAFF PERSONNEL

Senator BIBLE. How many personnel are there on the staff now of the Assistant Secretary for Public Service, and what does this official do?

Dr. RIPLEY. The Office has a staff of four persons including the Assistant Secretary for Public Service. He serves as my principal staff officer and adviser on all programs and activities relating to public service. In this capacity, he supervises and coordinates such Smithsonian offices as the Office of Public Affairs, the Division of Performing Arts which produces the annual Folklife Festival I mentioned earlier, the Office of International Activities, and our Smithsonian Associates and Museum Shops programs. In addition, I frequently call upon him to represent me in planning and developing important cultural projects undertaken at the request of other agencies and institutions. On occasion, he serves as my alternate on such important matters as meeting and conducting official business with dignitaries and high-ranking officials of the United States and foreign countries.

OFFICE OF SECRETARY PERSONNEL

Senator BIBLE. How many personnel do you have in the Secretary's office now?

Dr. RIPLEY. We have a fiscal year 1971 base of 38 persons.

Senator BIBLE. This gives you two more?

Dr. RIPLEY. Yes; two more, to 40 persons, Mr. Chairman.

OFFICE OF GENERAL COUNSEL

Senator BIBLE. Where in your fiscal year 1971 budget was provision made for the office of the General Counsel?

Dr. RIPLEY. Mr. Bradley, could you answer that?

Mr. BRADLEY. Mr. Chairman, this office was included in a group of activities titled Management Support.

Senator BIBLE. Tell me more, then, about the office of the General Counsel. How many lawyers are in there?

Mr. BRADLEY. Sir, we have six lawyers including a part-time person.

Senator BIBLE. How many clerical personnel?

Mr. BRADLEY. Mr. Chairman, about three clerical.

Senator BIBLE. What type of legal problems do lawyers have in the Smithsonian?

Mr. BRADLEY. A range of problems from Federal to private finance problems, such as estates, and tax laws, and legislative proposals and occasional tort claims, occasional contractual cases, litigation involving anything that you might imagine a corporation would find itself getting into.

Senator BIBLE. All right.

SPECIAL FOREIGN CURRENCY PROGRAM

For fiscal year 1972 you propose an appropriation of \$5.5 million for the Special Foreign Currency Program. This is an increase of three million over the appropriation for the current fiscal year. The justification for this request will be placed in the record.

(The justification follows:)

SMITHSONIAN INSTITUTION
MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)

1970 Appropriation	\$2,316,000
1971 Appropriation	2,500,000
1972 Estimate	5,500,000

An appropriation of \$5,500,000 in foreign currencies which are determined by the Treasury Department to be excess to the needs of the United States is requested for a program of grants to United States institutions for essential field research in archeology and related disciplines, systematic and environmental biology and astrophysics, as well as for museum programs and for other Smithsonian interests.

The requested increase of \$3,000,000 in foreign currencies is to be devoted to strengthening the research programs of United States universities, museums and other institutions of higher learning in those countries where the United States holds excess currencies.

The increase is essential to support urgent field studies in the Smithsonian's traditional disciplines of systematic and environmental biology and anthropology which today are recognized as basic to an understanding of the problems of environmental quality and cultural change.

The increase is essential also to ensure support for on-going and new research which contributes to United States national programs under, for example, the International Biological Program under Public Law 91-438, the International Decade of Ocean Exploration, the National Aeronautics and Space Administration, the National Academy of Sciences, the United States National Museum and the Department of Interior's cooperative programs abroad under the Endangered Species Conservation Act.

Above all, the increase is essential to provide funds for pending and new research projects from some 22 United States institutions. Funds available during fiscal year 1970, including all previous appropriations, were sufficient only to cover the cost of on-going research. The fiscal year 1971 appropriation is sufficient only to support on-going research and that only at a reduced level. There will be no money for new research.

Finally, the increase is essential to permit multi-year obligation of funds for research in those "excess" currency countries, like Tunisia and Morocco, where the excess designation by the Treasury Department is subject to termination at any time because "excess" accounts are small. Failure to obligate funds for a reasonable number of years for projects in such countries could prematurely terminate worthy studies by United States institutions without receiving full value from funds already expended. The Smithsonian appropriation has never been adequate to permit obligation of funds for more than one year of research at a time. Ceylon, where multi-year research has been underway, was removed from the "excess" currency country list at the end of fiscal year 1970. The

Institution was only able to provide for orderly completion of this research, by making multi-year obligations against monies originally committed for obligation for research in other countries during fiscal year 1971. The Program will, of course, continue to require annual Advisory Council review to determine satisfactory research progress of these and other multi-year studies prior to authorizing disbursement of each successive year's funds.

Funds are requested for the following programs:

	FY 1966-70 Cumulative <u>Commitments</u>	FY 1971 Estimated <u>Commitments</u>	FY 1972 Appropriation <u>Request</u>
Archeology and Related Disciplines	\$ 5, 689, 550	\$ 1, 300, 000	\$ 1, 750, 000
Systematic and Environ- mental Biology	4, 143, 417	1, 000, 000	3, 000, 000
Museum Programs	146, 986	80, 000	220, 000
Astrophysics	519, 124	106, 000	500, 000
Grants Administration ...	<u>51, 568</u>	<u>14, 000</u>	<u>30, 000</u>
	\$10, 550, 645	\$ 2, 500, 000	\$ 5, 500, 000

PROGRAM GROWTH

The Smithsonian Foreign Currency Program has grown from one that supported nine projects in its first year, fiscal year 1966, to one that will support an estimated 97 projects in fiscal year 1971. A total of 168 projects had received Program support by the end of fiscal year 1970. At the end of fiscal year 1970 also, a total of \$10,550,645 had been committed out of the five year appropriation total of \$10,564,000. A total of \$2,923,000 was obligated in fiscal year 1970 alone for grants to on-going research including that approved in earlier years but postponed while host country clearances were obtained. New inquiries about foreign currency uses continue to average about one a day.

This rising demand for foreign currency grants reflects both the scientists' search for alternatives to declining federal research dollars and an expanding Smithsonian Special Foreign Currency Program authority. Program authority which was limited to archeology and related disciplines in the first year, fiscal year 1966, was broadened in fiscal year 1967 to include systematic and environmental biology, in fiscal year 1969 to include astrophysics and in fiscal year 1970 to include museum programs. During the same period, the appropriation increased from \$1,300,000 in fiscal year 1966 to \$2,316,000 in fiscal year 1967, where it remained until fiscal year 1971 when it was increased to \$2,500,000.

NO FUNDS FOR NEW RESEARCH

This limit on appropriations has meant that worthy projects which have sometimes required months or years to prepare and then to win approval for from the Smithsonian and from host country governments, cannot be supported and may be abandoned. Participating scholars, always under pressure to publish, must seek other research opportunities. A waiting list of such unfunded projects has been established. As funds become available, projects with the highest scientific

ratings will be funded first. To avoid postponement of worthy research and to provide for rising demand, an appropriation level of \$6,000,000 annually is considered realistic for future years.

USE OF FOREIGN CURRENCIES SAVES HARD DOLLARS

Special Foreign Currency Program appropriations are an advantageous source of research monies. This is so because they are not new appropriations of tax dollars and because delay in the use of the "excess" accounts means continuing losses to the United States Treasury as these accounts lose value through inflation and devaluation. Moreover, these appropriations do not add significantly to the President's budget total because the Commodity Credit Corporation reduces its appropriation request by an amount equal to the amount of foreign currencies expended.

At the same time, Special Foreign Currency Program appropriations contribute to essential national research objectives abroad without contributing to a balance of payments deficit. Moreover, Smithsonian Foreign Currency grants frequently serve as dollar-saving supplements to the dollar grants of both public and private agencies like the National Endowment for the Humanities, the National Science Foundation, the National Institutes of Health, the National Aeronautics and Space Administration, the World Wildlife Fund, the John D. Rockefeller III Fund and the Wenner-Gren Foundation. In such cases, the foreign currency grants cover costs in the host country; the dollar grants are expended in the United States for equipment not available in "excess" currency countries, for American salaries, laboratory fees and the like.

FOREIGN CURRENCIES SERVE NATIONAL PROGRAMS ON ENVIRONMENTAL QUALITY

Now is the time to use foreign currencies for urgent field studies of the processes of change in man's natural environment and in his culture. The impact of technology on rural and urban communities, the poisoning of man's environment and the destruction of nature's productive mechanisms in the face of exploding human populations, are all problems of direct interest to the Smithsonian. Unrest in urban centers and among young people the world over attest to our poor understanding of these processes. Although the Smithsonian adheres to its traditional role as an institution for basic, not applied, research, its traditional biological and anthropological interests are basic to an understanding of these immediate national and world problems.

"Excess" foreign currencies represent a substantial national resource which should be fully utilized to support studies of environmental quality like the following projects:

... The United States' Desert Biome program under the International Biological Program proposes studies in Tunisia of the continuing encroachment of the Sahara in spite of concerted conservation efforts. Utah State University is the headquarters for this broad study.

... Yale University and the Smithsonian are conducting ecological studies in the Gir Forest in Northwest India where agricultural pressures threaten destruction

of the forest which is the last habitat of the Asiatic lion, which once roamed the region from the Mediterranean to the South China Sea.

...The Smithsonian is studying, together with Israeli scientists, the movement of marine organisms through the man-made, sea-level Suez Canal. Results show that the majority of commercially valuable fish taken in the Eastern Mediterranean originated in the Red Sea. These studies have saved the United States thousands of hard research dollars because they provide a tested model for studies being prepared by the National Academy of Sciences in connection with a possible sea-level canal at Panama.

...The United States Tropical Forest Biome program under the International Biological Program proposes studies of the tropical forests, grasslands, and cultivated lands in the Ganges river valley in India. The University of Georgia is the sponsor of this research.

...The Smithsonian is studying migrating birds and the parasites associated with them in Northeast Africa. Results show that these birds carry viruses and antibodies and thus can be considered potential carriers of human diseases.

Studies of cultural change supported by the Smithsonian Foreign Currency Program include:

...San Jose State College, San Jose, California studies of responses to unusually rapid modernization in a traditional Hindu temple village in India.

...University of Washington studies of the modern history of a caste in India through analysis of its experience of urbanization.

...Kansas State University studies of the nature of changes in values, attitudes, relationships in the Tamil speaking world in India under pressure of modern communications and technological developments.

Such studies by American scholars of man's behavior are best conducted abroad because, as a rule, the best observers of a living culture are those drawn from a different culture.

RESEARCH WHICH MUST BE POSTPONED

New research into the nature of the environment long in preparation which must be postponed because of insufficient funds in the Smithsonian fiscal year 1971 appropriation include:

...International Decade of Oceanography studies conducted aboard the Smithsonian research vessel PHYKOS by scientists from major American oceanographic research institutions as a part of the approved United States national contribution to the Cooperative Investigations of the Mediterranean of the Intergovernmental Oceanographic Commission.

...Oak Ridge National Laboratory studies of deciduous forest and grassland ecosystems in Poland which will supplement similar studies under Oak Ridge's direction under the United States national plan for the International Biological Program.

... Utah State University ecological studies in the Kaziranga Wildlife Sanctuary in India as related to wildlife management.

... University of Nevada comparative ecological studies of the arid zones of Morocco.

ACCOMPLISHMENTS

Smithsonian Foreign Currency Program grants have benefited more than 200 United States institutions in over 25 states. Accomplishments include:

... More than 107 research publications. Recent publications include the first systematic study of marine organisms sorted and distributed by the Smithsonian's Mediterranean Marine Sorting Center in Tunisia and an ecological analysis of the climate and vegetation of Ceylon growing out of the studies of the Ceylonese elephant undertaken by the National Zoological Park.

... More than 214 post-doctoral research opportunities for Americans.

... More than 220 training opportunities for American Ph.D candidates, who obtained essential field experience, frequently obtaining course credit, and more often accomplishing the independent research for doctoral dissertations. Especially noteworthy for the training of students have been Hebrew Union College, Cincinnati, Ohio in its summer seminar at the excavation of the biblical city of Gezer in Israel; and the American Institute of Indian Studies (a consortium of 23 American universities), whose junior fellows conduct research in India toward their doctor's degrees with Smithsonian support. Most research projects include at least one American and one host country senior research scholar and one American and one host-country graduate student.

... Additions to research collections of the National Museum of Natural History and of other grantee institutions in the form of archaeological, ethnographic and biological specimens collected and shared with the collaborating institutions in the "excess" foreign currency country. The National Museum of Natural History is receiving specimens of handcrafts from India and Ceylon which are still being manufactured today employing methods handed down from father to son for centuries. They represent a unique source of information on the archaeology of these countries. Yale University's Peabody Museum and the Museum of the University of Colorado have benefited from additions to their paleontological collections growing out of expeditions in Egypt and Tunisia respectively. The Yale expedition is making substantial contributions to our understanding of man's evolution; the Colorado expedition has uncovered important information about the environment of early man and the geological history of northwest Africa.

GROWING RESEARCH OPPORTUNITIES

Opportunities continue to grow to employ foreign currencies. In June 1969 an amendment was signed to the principles of cooperation between the Smithsonian and the Government of Yugoslavia permitting collaboration in ecological research there. Research proposals promoted by this amendment are just beginning to arrive at the Smithsonian. The recent exchange of visits of Dr. Lee DuBridge, when he was the President's Science Adviser, and Yugoslavia's Minister Marco Bulc has provided added impetus and particularly to a Smithsonian-Yugoslav program to study man's impact on his environment. Moreover, the change in government in Pakistan brought increased interest in collaboration in basic research under the Smithsonian program. A University of Washington proposal to study the wild boar of Pakistan has just been approved--the first for the Smithsonian in Pakistan. A Smithsonian proposal to study the marine fauna of the continental shelf of West Pakistan is currently under consideration by the Government of Pakistan. In India, the Smithsonian is sponsoring an ecological research planning symposium which will provide agreed ecological research objectives with the Government of India and open the door to a substantial program of joint research.

Direct dollar costs to the Smithsonian for its Foreign Currency Program are limited to those for administrative personnel in Washington. During fiscal year 1971, six people were employed by the Office of International Activities for this purpose at a total cost of about \$88,000. The administrative burden has grown by some 79 grants during the past year and by some 40 grants the previous two years without any increase in personnel. The increase in activity has been made possible by the simplification of procedures and the introduction of labor-saving equipment.

This Special Foreign Currency Program request, as in the past, is based on budget projections for on-going research and on pending and new research proposals which include firm research proposals, those postponed by lack of sufficient funds, and other sample or illustrative proposals based on firm indications of interest both within and without the Smithsonian. They represent the Institution's selection of possible projects which appear most promising for successful development and implementation during fiscal year 1972. It should be noted, however, that actual implementation of these projects, and the distribution among disciplines and countries of "excess" currencies appropriated will be contingent upon three factors: review by the Smithsonian's national scientific advisory councils, review and approval by American embassies overseas, and appropriate cooperative arrangements with host-country institutions or Governmental authorities.

MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)

1. Archeology and Related Disciplines

A. On-going Projects

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U.S. Dollars</u>	
1. American Institute of Indian Studies (a non-profit organization of 24 American colleges and universities)	To continue support of the Center for Art and Archeology a research center for South Asian archeology and art history.	1972est.	80,000
		1971	121,012
		1970	150,000
		1969	139,230
		1968	144,500
		1967	130,750
		1966	76,850
2. American Research Center in Egypt (a nonprofit study center supported by ten American universities)	To continue support of the Center's research and excavation program in the archeology of Egypt, which includes Pharaonic, Hellenistic, Roman, and early Christian sites.	1972est.	100,000
		1971	164,315
		1970	25,955
		1969	109,415
		1968	202,071
		1967	176,777
		1966	259,200
3. Jerusalem School of Archeology of the Hebrew Union College	To continue the survey and exploration of archeological sites in the Negev and the excavation at Tel Gezer.	1972est.	85,000
		1971est.	85,000
		1970	248,340
		1969	68,500
		1968	216,200
		1967	300,000
		1966	150,000
4. University Museum, University of Pennsylvania	To terminate the study of the Temple of Akhnaten at Luxor, Egypt and to prepare the publication on this study.	1972est.	30,000
		1971	28,000
		1970	67,000
		1969	60,000
		1968	9,730
		1967	65,070
5. University of Missouri	To continue to excavate at Tell Anafa, Israel, to understand better the nature of Greek trade with Palestine and Egypt in the period after 800 B.C.	1972est.	45,000
		1970	35,500
		1969	40,000
		1968	60,500
6. University of Minnesota	To continue a program of research in Yugoslavia with excavations of the unique Roman Palace of Diocletian at Split, Yugoslavia.	1972est.	40,000
		1971est.	55,000
		1970	60,288
		1969	78,184
		1968	32,505

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U.S. Dollars</u>	
7. Smithsonian Institution Office of Anthropology	To study disappearing metal- working crafts of Pakistan and Ceylon as part of a worldwide study of ancient technologies and their development.	1972est.	30,000
		1971	51,030
		1970	76,133
		1969	43,742
		1968	25,128
8. Dumbarton Oaks (Harvard) Center of Byzantine Studies; American Academy in Rome	To continue studies of the unique but rapidly disintegrating Roman and Byzantine mosaics at historic Utica and extend them to Thurburbo Majus, Tunisia.	1972est.	150,000 ^{1/}
		1971	58,112
		1970	58,691
		1969	28,628
9. University of Illinois	To continue comparative studies of the effects of cultural change on folk music in Israel and Tunisia.	1972est.	22,000
		1971	30,000
		1970	31,575
10. American Institute of Indian Studies	To continue support for post- doctoral research in social and cultural anthropology and lin- guistics of India and to support the Institute's center in Poona, India as an American research center abroad serving American scholars in all fields.	1972est.	100,000
		1971	239,654
		1970	133,920
		1968	147,930
11. American Schools of Oriental Research, Boston, Mass. (a consortium of 5 United States institu- tions of higher learning)	To continue support for two archeological excavations at Tell el Hesi and Kirbet Shema embrac- ing biblical, Greek, Roman and Byzantine periods.	1972est.	140,000
		1971	117,492
		1970	166,713
		1969	50,000
		1968	80,000
12. State University of New York at Buffalo (formerly under Univer- sity of Michigan)	To continue excavations of the earliest Neolithic settlements in Poland.	1972est.	26,000
		1971	36,220
		1969	37,251
		1968	36,107
		1967	21,684
13. Denison University	To continue excavations at Sirmium, a Roman provincial capital along the fortifications erected against the "barbarians."	1972est.	40,000
		1971est.	61,000
		1970	61,599
		1969	65,223
		1968	34,285

^{1/} Multi-year obligation to ensure orderly completion of research in countries where "excess" accounts are small.

<u>Recipient</u>	<u>Project</u>	<u>Trant Expressed in U. S. Dollars</u>	
14. Office of Anthropology Smithsonian Institution	To continue to study the impact on the culture of Palestine of the Phoenician, Cypriot, Egyptian and Arabian cultures from the Middle Bronze age through the Persian period through excavations at Tell Jemmeh in Southern Israel.	1972est. 1971 1970	85,000 63,536 63,272
15. University Museum University of Pennsylvania	To continue study of Dra Abu El Naga tomb inscriptions, Egypt.	1972est. 1970 1969 1968	20,000 17,000 17,300 9,750
16. University of California Los Angeles	To continue excavations of an early neolithic settlement at Anzibegovo Macedonia, Yugoslavia considered a cross road for formative cultures of western civilization.	1972est. 1971est 1970 1969	20,000 20,000 50,487 30,900
17. University of Michigan	To continue research and excavations into the Middle Paleolithic of Northern Bosnia, Yugoslavia	1972est. 1971est. 1969	20,000 25,000 15,220
18. University of Michigan	To document photographically the architecture, sculpture and paintings of the Bhuddists, Hindus and Jains during India's "Golden Age" from the fifth to the eight century A. D.	1972est. 1971est.	5,000 5,000
19. University of Texas	To excavate the classical site of Stobi in Macedonia, Yugoslavia which lies at the confluence of Greek, Roman and ancient Balkan cultures.	1972est. 1971est. 1970	35,000 35,000 40,000
20. Dumbarton Oaks (Harvard) Center for Byzantine Studies	To excavate the Byzantine provincial capital of Bargala in Macedonia which lies at the confluence of Greek, Roman and ancient Balkan cultures in a study supplementary to excavations at Stobi and at Azibegovo which covers the earlier classical and pre-historic periods respectively.	1972est. 1970	35,000 35,275
<u>1972 Subtotal Estimate for On-going Research</u>			1,108,000

B. Pending Research Proposals

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>	
1. Smithsonian Institution Office of Anthropology	To study the rapidly disappearing crafts at village level in India	1972est.	25, 000
2. American Museum of Natural History	To initiate archeological excavations together with the Archeological Survey of India with special provision for the training of Americans in the archeology of South Asia, today an area largely neglected by U. S. scholarship.	1972est.	30, 000
3. University of California Los Angeles	To excavate Islamic archeological sites in West Pakistan.	1972est.	30, 000
4. Brandeis University	To survey and excavate a western Phoenician archeological site in Morocco.	1972est.	100, 000 ^{1/}
5. Smithsonian Astro- physical Observatory, Cambridge, Mass., Dickinson College, Carlisle, Pennsylvania	To explore the significance to ancient Egyptian societies of the stars through study of the alignment of the temples at Luxor through application of new techniques of aerial photography and compiles calculation of the positions of stars in ancient times.	1972est.	7, 000
6. University of Hawaii	To initiate prehistoric archeological excavations in north-eastern India.	1972est.	30, 000
7. Washington State University	To excavate a prehistoric flint mining complex work of the Kanienm River in Poland.	1972est.	25, 000
8. Washington State University	To study pre-mesolithic fossils in Poland.	1972est.	10, 000
9. University of Nevada	To excavate the prehistoric site of Kausambi in northern India.	1972est.	30, 000
10. University of Washington	To study the relations of fishing boat crew members and how they relate to conflict groups in a peasant fishing town in Yugoslavia.	1972est.	15, 000

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>	
11. University of Washington; the American Museum of Natural History, New York	To study the historical and religious documents of Tibet brought to India by the exiled Dalai Lama.	1972est.	30,000
12. Southern Illinois University	To study the impact of rural road construction on social, cultural and economic change in Yugoslavia.	1972est.	28,000 ^{2/}
<u>Subtotal for Pending Research</u>			360,000
 <u>C. New Projects</u>			
1. Colgate University, New York	To document in film, tape recordings and through anthropological survey techniques, the disappearing performing arts of India.	1972est.	35,000 ^{2/}
2. University of Michigan	To study in Egypt the art and technology of Graeco-Roman lamps as one method of linking the chronology of ancient cities of Egypt with those of the rest of the Graeco-Roman world of antiquity.	1972est.	2,000 ^{2/}
3. University of Kansas	To study the pre-history of Lake Luda in Yugoslavia through studies of fossil remains of plants and animals and the computer analysis of the distribution of prehistoric artifacts.	1972est.	20,000 ^{2/}
4. Association for Asian Studies, Ann Arbor, Michigan	To support linguistic research in India of the Committee on South Asian Languages.	1972est.	50,000
5. University of Michigan	To study the genetic effects of inbreeding on Indian children.	1972est.	25,000

^{2/} Fiscal year 1971 grant postponed for lack of funds.

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>
6. Smithsonian Institution Department of Anthro- pology	To excavate the Moroccan Islamic city of Sijilmassa.	1972est. 150,000 ^{1/}
<u>Subtotal Estimate for New Research</u>		282,000
<u>Total Archeology and Related Disciplines</u>		<u>1,750,000</u>

II. Systematic and Environmental Biology

A. On-going Projects

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U. S. Dollars</u>
1. University of Georgia	To study the flow of energy through small rodent popu- lations in different habitats in conjunction with the Ecological Institute of Poland.	1972est. 40,000 1969 73,468
2. Smithsonian Institution Office of Environmental Studies, Oceanography and Limnology Program	To study marine organisms of the Red Sea and Eastern Mediterranean in order to determine what biological interchange of species has occurred through the Suez Canal.	1972est. 75,000 1971est. 75,000 1970 119,462 1969 133,473 1967 122,000
3. Smithsonian Institution Office of Environmental Studies, Oceanography and Limnology Program	To accelerate the processing of marine organisms from the Mediterranean through the sorting facility known as the Mediterranean Marine Sorting Center operated in cooperation with the Tunisian Institute of Oceanography and Fisheries.	1972est. 600,000 ^{1/} 1970 478,736 ^{1/} 1969 216,962 1967 150,000
4. Smithsonian Institution Division of Birds	To continue investigations on the ecology of Palearctic birds mi- grating through northeastern Africa, including cooperative re- search on serology with the Rockefeller Virus Laboratory and ectoparasites with the Naval Medical Research Unit III in Egypt.	1972est. 25,000 1971 26,680 1970 24,680 1969 33,780 1967 34,593

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U. S. Dollars</u>	
5. University of Michigan	To continue taxonomic studies of Indian mollusks through caryotype analysis and the cytogenetics of closely related species which will contribute to medical, public health, and veterinary programs.	1972est.	25,000
		1971est.	25,000
		1970	25,562
		1969	25,414
6. State University of New York at Stony Brook	To continue theoretical ecological studies of a living coral reef and the organisms related to it in Israel.	1972est.	20,000
		1971est.	20,000
		1970	7,122
		1968	12,036
7. Smithsonian Institution Department of Vertebrate Zoology	To continue studies of South Asian birds and their migration and the preparation of a handbook.	1972est.	20,000
		1971	20,133
		1970	17,800
		1969	3,417
8. University of Missouri	To continue studies of the behavior and ecology of gazelles in Israel.	1972est.	30,000
		1971est.	30,000
		1970	45,070
9. Library, Smithsonian Institution	To continue accelerated translation and publication of reference works and monographs through the National Science Foundation's translations program.	1972est.	50,000
		1971est.	25,000
		1970	25,000
10. Office of Vertebrate Zoology, National Museum of Natural History, Smithsonian Institution	To continue to study the geographic distribution and the ecology of the mammals of Morocco.	1972est.	45,000
		1971	43,650
		1970	66,840
11. University of Michigan	To study productivity of tropical lakes in Southern India.	1972est.	30,000
		1971est.	30,000
12. University of Washington	To study the ecology and behavior of the wild boar in West Pakistan, a little studied animal which is nevertheless a significant agricultural pest.	1972est.	50,000
		1971est.	47,000
13. Duke University, Durham, North Carolina	To conduct studies for the classification of Moroccan lichen with special emphasis on their chemical characteristics.	1972est.	3,000
		1971est.	3,000

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U. S. Dollars</u>	
14. International Biological Program, U. S. National Committee, National Academy of Sciences	To continue direct support to the U. S. National Committee for planning symposia, training U. S. scientists, developing research programs and coordinating U. S. and foreign research in each of the "excess" currency countries.	1972est. 75,000 1971 30,000 1970 50,000 1968 10,000	
15. International Biological Program, Yale University New Haven, Conn.	To continue to study habitat relationships, numbers and distribution of wild antelope, deer and boar in the Gir Forest in India as a part of a broad study of this tropical forest has included the Asiatic lion.	1972est. 25,000 1971est. 26,000 1970 35,055	
16. Office of Environmental Studies, Oceanography and Limnology Program, Smithsonian Institution	International Decade of Ocean Exploration (IDOE), cooperative investigations of the Mediterranean aboard the Smithsonian research vessel PHYKOS as follows:	1972est. 220,000 1971 1969	
--University of Southern California	Dredging, coring and bottom grab sampling in studies of microscopic sea life and fossils of such life.		
--National Museum of Natural History, Smithsonian Institution	Deep sea dredging to study recent changes in the geography of biological regions through study of the changing conformation of the highly adaptable animal, the ostracod.		
--Duke University Durham, North Carolina	Bi-monthly cruises to collect samples for the study of the development, distribution and biology of crab larvae.		
--Washington State University	Biological sampling for studies of the paleontology of Pteropods		
--University of North Carolina	Isolation and study of pure cultures of marine fungi.		
--National Museum of Natural History Smithsonian Institution	Plankton tows for studies of planktonic foraminifera.		
--Florida State University	Sampling for studies of deep sea biology and geology.		

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U. S. Dollars</u>
--University of Delaware	Towing multiple plankton samplers to study the verticle distribution of the cosomatous pteropods in relation to water masses.	
--University of California	Sampling deeper than 200 meters to study the systematics and distribution of marine mites.	
--Division of Fishes National Museum of Natural History Smithsonian Institution	Long line fishing for several hundred specimens for a study of the distribution of the common sharksucker.	
--University of North Carolina	Trawling, gill net, and long line collection of samples for systematic and distribution studies of sharks and their relatives.	
--Department of invertebrate Zoo- logy, Smithsonian Institution	Mid-water trawling for studies of the systematics, distribution and ecology of pelagic Cephalopods.	
--Department of Paleobiology Smithsonian Institution	Dredging, coring and bottom photography to study the morphology of sediments and sub-bottom.	
--Massachusetts Institute of Technology	Deep lowerings of coring and grab sampling equipment for study of the deepest Mediteranean geological structures.	
--Woods Hole Oceanographic Institution, Massachusetts	Submergible dives to explore the water transport over the Scarpanta sill in the Eastern Mediterranean.	
--University of New Hampshire	Ecology of deep sea animals.	
--Lamont-Doherty Geological Observatory, Columbia	Ecology of skeletal plankton (foraminifera and pteropods)	
--University of Georgia	Distribution of organic chemicals and trace elements.	

FY 1972 Subtotal Estimate for On-going Research 1,333,000

B. Pending Projects

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>	
1. Smithsonian Institution Department of Botany	To initiate flora and vegetation studies of a district of Mysore State in the Ghat Mountains of Southwest India and to prepare collections for the Smithsonian's National Herbarium.	1972est.	20,000
2. University of Georgia	To initiate studies of the interaction of human and small rodent populations in a variety of temperate zone environments in conjunction with the Ecological Institute of the Polish Academy of Sciences.	1972est.	25,000
3. Smithsonian Institution Office of Environmental Studies	To initiate studies of the behavior of elephants and primates in India coordinated with base line studies already conducted in Ceylon.	1972est.	50,000
4. Union College, Schenectady, N. Y.	To collect and study the plankton communities of the Nile River Delta with special reference to the changes in salinity and circulation caused by interruption of seasonal river fluctuation by the Aswan Dam.	1972est.	50,000
5. Smithsonian Institution, Program of Oceanography and Limnology	To collect and conduct taxonomic studies of the marine fauna of West Pakistan's continental shelf.	1972est.	50,000
6. Gulf Coast Marine Lab., Mississippi, and Division of Fishes, National Museum of Natural History, Smithsonian Institution	To conduct systematic and behavioral studies of flatfishes and gobioid fishes in collaboration with the Zoological Survey of India.	1972est.	25,000
7. Smithsonian Institution Division of Invertebrate Paleontology	To study in Tunisia the broadly distributed fossil ostracod which reveals through its varied physical appearance much about the climate and geography of the geologic era in which it lived.	1972est.	75,000 <u>1/</u>

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U.S. Dollars</u>	
8. Smithsonian Institution Office of Environmental Sciences	To conduct in Egypt a symposium on the Biological control of the snail, carrier of the disease, bilharzia, in the newly formed reservoirs and canals associated with the Aswan dam in Egypt.	1972est.	20,000
9. Smithsonian Institution Office of Environmental Studies	To collect for the U.S. National Museum and study the flora of the long neglected areas of India particularly the Malabar and the Karomandel Coasts, and the Nilghiri and Khasis Hills--areas which served as sources of materials for classic botanical studies made as long ago as the 17th Century and badly in need of revision.	1972est.	20,000
10. University of Georgia	To study organic productivity and nutrient cycling in tropical ecosystems in collaboration with the Hindu University of Benares, India. This study has been proposed to the National Committees for the International Biological Program of both the United States and India.	1972est.	42,000
11. Missouri Botanical Gardens	To initiate a comprehensive program of the study of the flora of Morocco with bio-systematic studies of flowering plants.	1972est.	100,000 ^{1/}
12. Ohio University	To study the pollution condition of Lake Tunis in Tunisia.	1972est.	100,000 ^{1/}
13. Queens College, University of the City of New York	To conduct museum studies of unique specimens of fossil mammals in Poland in connection with studies of evolution.	1972est.	2,000 ^{2/}
14. Office of Environmental Studies, Oceanography and Limnology Program Smithsonian Institution	To initiate study of the existing ecosystem of the Eastern Arabian Sea through oceanographic cruises undertaken in cooperation with the Indian National Institute of Oceanography.	1972est.	40,000

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>	
15. Office of Environmental Studies, Oceanography and Limnology Program Smithsonian Institution	To initiate a multi-year program of study of the ecology of coral reefs in India.	1972est.	56,000
16. Oak Ridge National Laboratory Oak Ridge, Tenn.	As a part of United States research under the International Biological Program, to conduct cooperative research in Poland on temperate zone forest and grassland ecosystems supplementing studies conducted in the United States.	1972est.	25,000
17. Pennsylvania State University	As a part of United States research under the International Biological Program, to conduct comparative studies of human adaptability at high altitudes in India.	1972est.	50,000
18. University of Minnesota	As a part of United States research under the International Biological Program, to study biological rhythms in the catfish in India.	1972est.	25,000
19. Pennsylvania State University and the University of Minnesota	As a part of United States research under the International Biological Program, to study in South Asia the international spread of plant disease by means of airborne organisms.	1972est.	50,000
20. University of Utah	As a part of United States research under the International Biological Program, to conduct comparative studies in the arid climates of Tunisia and India supplementing studies conducted in the United States.	1972est.	175,000 ^{1/}
21. University of Colorado	To initiate systematic studies of the flora of Yugoslavia.	1972est.	49,000 ^{2/}
<u>Subtotal Pending Biological Research</u>			1,049,000

C. New Projects

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>	
1. Utah State University	To study in India, the ecology and behavior of the one-horned rhinoceros, an endangered species, surviving in the Kaziranga Wildlife Sancturay.	1972est.	69,000 ^{2/}
2. University of Texas	To conduct studies of the ecology of Indian ungulates in the wildlife sanctuaries of Rajasthan.	1972est.	30,000
3. University of Nevada Desert Research Institute	To conduct in Morocco studies in desert ecology parallel to those conducted in Nevada.	1972est.	200,000 ^{1/}
4. University of California, Davis	To conduct in East Pakistan studies related to man's evolution through research in the ecology and behavior of the Hoolock Gibbon which seasonally changes its single-family territorial behavior to multi-family foraging group organization.	1972est.	25,000
5. National Museum of Natural History, Smithsonian Institution	To initiate ecological and behavioral studies of rhesus monkeys and langurs in India.	1972est.	30,000
6. Dartmouth College Hanover, New Hampshire	To conduct studies of the ecology of Lake Ohrid and its drainage basin in Yugoslavia.	1972est.	50,000
7. Office of Environ- mental Sciences, Smithsonian Institution	To develop a cooperative program in environmental management employing Lake Skadar in Yugoslavia and the Smithsonian's Chesapeake Bay Center for Environmental studies as the study areas. Such studies will provide the foundation for sound economic planning and development limiting man's degradation of his environment.	1972est.	100,000
8. Department of Invertebrate Zoo- logy, National Museum of Natural History	To initiate studies of the systematics and zoogeography of the stomatopod crustaceans on the eastern coast of India.	1972est.	20,000

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>	
9. Chico State College, Californai	To collect for systematic studies,ants and parasites associated with man in Tunisia and Guinea.	1972est.	15, 000
10. University of Washington,College of Forest Resources	To study geographic variation of the forest tree species <u>Shorea robusta</u> and the ecological basis for the variations, and to detect seed sources best for reforestation.	1972est.	14, 000
11. University of Illinois at Chicago Circle	To trace the evolutionary relation- ships among Upper Cretaceous teleostean fishes through collection and study of those found in the Yugoslav Dalmatian Cretaceous outcroppings.	1972est.	10, 000
12. Office of Environ- mental Sciences, Smithsonian Institution	To initiate a survey of the rapidly disappearing India tiger and to study its ecology preliminary to development of conservation plans.	1972est.	15, 000
13. Smithsonian Tropical Research Institute, Panama	To initiate a program for com- parative studies in evolutionary ecology in India including environ- mental monitoring.	1972est.	40, 000
<u>Subtotal New Biological Research Proposals</u>			618, 000
<u>Total Biological Research</u>			3, 000, 000

IV. Museum ProgramsA. On-going Projects

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U.S. Dollars</u>	
1. U.S. National Museum	To assist, under the U.S. National Museum Act, with museum expertise and support the program of the International Council of Museums (ICOM), a UNESCO affiliate, to develop teaching museums of science and technology in Asia and Africa. For example, the Smithsonian contributed in FY 1969 to studies resulting in recommendations to ICOM that there be established in India a laboratory for basic exhibits in science and technology where teaching exhibits will be built for circulation in industrializing countries. The experiment will provide opportunities to American Museum Specialists to observe the effectiveness of exhibits in teaching basic science and technology to people of all cultural backgrounds.	1972est.	80,000
		1971est.	55,000
		1970	19,056
		1969	20,000
Subtotal On-going Museum Programs			80,000

B. Pending Projects

1. National Collection of Fine Arts and Smithsonian Traveling Exhibition Service	To prepare an exhibit catalogue, to be the first scholarly publication on a unique collection at Benares Hindu University, of miniature paintings of the Moghul period of Indian art for distribution through American museums exhibiting such art treasures, for the first time, in the United States.	1972est.	5,000
2. American Association of Museums and the United States National Museum	To initiate a program of professional training for museum curators and technicians in collaboration with museums of India, Pakistan, Tunisia and Egypt through two-way exchanges of personnel for on-the-job training. Participants would be expected to serve at least six months in a museum housing collections of direct importance to their professional development.	1972est.	85,000
Subtotal Pending Museum Programs			90,000

C. New Projects

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U.S. Dollars</u>	
1. Smithsonian Traveling Exhibition Service	To prepare an exhibition of Pakistani ethnographic materials and accompanying scholarly catalogue for circulation to United States Museums and universities.	1972est.	20,000
2. Division of Ethnic and Western Cultural History, National Museum of History and Technology	To study and collect in Poland ethnographic materials to supplement national collections for circulation to United States educational and cultural organizations.	1972est.	20,000
3. National Museum of History and Technology	To study in Poland and Yugoslavia the cultures of origin of im- migrant Americans and make ethnographic collections to be used in preparing U.S. Bicen- tennial Exhibits.	1972est.	10,000
<u>Subtotal New Museum Programs</u>			50,000
<u>Estimated Total Museum Programs</u>			220,000

V. AstrophysicsA. On-going Projects

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U.S. Dollars</u>	
1. Hunter College of the City University of New York and Smithsonian Astro- physical Observatory	To continue computer analysis in Israel of the application of principles of plasma physics concerning the movement of particles at extremely high speeds to the movement of celestial bodies in galaxies-- a study of the collective be- havior of self-gravitating systems.	1972est. 1971est. 1970 1969 1968	15,000 15,000 13,450 5,400 41,810
2. Smithsonian Astro- physical Observatory	To continue studies in Israel comparing theories developed separately of the nature of the interior and of the exterior of evolving stars.	1972est. 1971est. 1970 1969	15,000 15,000 11,200 27,270

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U. S. Dollars</u>	
3. Smithsonian Institution Office of the Secretary	To assist in studies sponsored by newly created Center for Short-Lived Phenomena, a clearing house for the receipt and dissemination of information concerning rare or infrequent natural events that might otherwise go unobserved or uninvestigated, such as remote volcanic eruptions, the birth of new islands the fall of meteorites and large fire balls and sudden changes in biological and ecological systems.	1972est. 1969	10,000 9,540
4. Smithsonian Astrophysical Observatory	To record and analyze, together with data from around the world, at the Uttar Pradesh State Observatory, India, film exposures of suspected flare stars, a relatively newly discovered class of variable stars, with radio and optical energies several orders of magnitude higher than emissions from the largest solar flares.	1972est. 1970	12,000 11,440
5. American University in Cairo and Smithsonian Astrophysical Observatory	To conduct research in theories of planetary motion in Egypt.	1972est. 1971	20,000 23,634
6. Harvard University and Smithsonian Astrophysical Observatory	To conduct studies of thermal emission and absorption of diatomic molecules in India.	1972est. 1971est.	20,000 20,000
7. Smithsonian Astrophysical Observatory and consortium of United States Astrophysical Research Institutions	To conduct coordinated 24 hour observation of astronomical phenomena in collaboration with Israeli institutions employing telescopes in the western United States, Chile and Israel.	1972est. 1971est. 1970	70,000 142,000 275,200
--U. S. Naval Research Laboratory, Washington, D. C. and Massachusetts Institute of Technology	To conduct optical and photoelectric monitoring of X-ray sources.		

<u>Recipient</u>	<u>Project</u>	<u>Grant Expressed in U. S. Dollars</u>	
--California Institute of Technology	To conduct photoelectric monitoring of the continuum and line emission from quasi-stellar objects (QSO) and the nuclei of N-type galaxies.		
--Smithsonian Astro- physical Observatory	To conduct a high-dispersion abundance analysis of stars in the Pleiades.		
--State University of New York at Stony Brook	To determine the rate of star formation in young clusters.		
--Harvard College Observatory, Cambridge, Mass.	To conduct photometric obser- vations of the High Balmer Lines (near the Balmer Limit) and the Balmer Continuum in Planetary Nebulas.		
8. Harvard University	To conduct laboratory studies in India of the excitation pro- cesses in stellar, planetary and cometary atmospheres.	1972est. 30,000 1971est. 41,700	
<u>Subtotal Estimate for On-going Research</u>			192,000

B. Pending Projects

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>	
1. Smithsonian Astro- physical Observatory Cambridge, Mass.	To investigate solar radiation pressure perturbations upon the Passive Geodetic Earth-Orbiting Satellite (PAGEOS) in collabo- ration with the University of Warsaw and the Polish Academy of Sciences.	1972est. 72,000	
2. Smithsonian Astro- physical Observatory	To measure air glow and iono- spheric characteristics at the magnetic equator in studies con- tributing to the understanding of the nature of the upper atmosphere and of some of its effects on satellites.	1972est. 18,000	

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U.S. Dollars</u>	
3. Smithsonian Astro- physical Observatory	To initiate support for studies in geodesy, geophysics and celestial mechanics based on the tracking of man-made satellites at the Naini Tal astrophysical observing station in India.	1972est.	10,000 ^{2/}
4. University of Hawaii	To study the variations in the earth's gravity in India for a better understanding of its geological diversity and tectonic history particularly as it contributes to an understanding of continental drift.	1972est.	20,000 ^{2/}
5. University of California San Diego	To study in India the effects of cosmic rays on terrestrial and extra-terrestrial materials.	1972est.	8,000 ^{2/}
<u>Subtotal Pending Research</u>			128,000
<u>C. New Projects</u>			
1. Duke University Durham, North Carolina	To study sedimentation at Bahiret el Bibane on the shores of Tunisia.	1972est.	32,000 ^{2/}
2. Smithsonian Astro- physical Observatory	To initiate in India a program in indirect atmospheric measurements using radio tropospheric scatter techniques.	1972est.	12,000
3. Smithsonian Astro- physical Observatory	To initiate in Poland geophysical studies employing very long baseline interferometry techniques particularly studies of continental drift, polar wandering and satellite tracking.	1972est.	76,000
4. Smithsonian Astro- physical Observatory	To study in Poland the nature of stellar atmospheres.	1972est.	30,000

<u>Recipient</u>	<u>Project</u>	<u>Estimated Request in U. S. Dollars</u>	
5. Smithsonian Astro- physical Observatory	To supplement in Poland, United States contributions to the International Satellite Geodesy Experiment, a world-wide program sponsored primarily by the Committee on Space Research of the International Council of Scientific Unions.	1972est.	30, 000
<u>Subtotal Estimate for New Research</u>			180, 000
<u>Total Astrophysical Research</u>			500, 000

VI. Program Development and Administration

1. Smithsonian Institution	To defray costs of inspection	1972est.	30, 000
Office of International	and audit of field research sites	1971	20, 000
Activities	and costs of negotiation with	1970	20, 000
	host governments on program	1969	15, 000
	operations--costs which increase	1968	10, 000
	in step with the increasing numbers		
	of active grants.		
<u>Total Program Development and Administration</u>			30, 000
GRAND TOTAL			\$5, 500, 000

MUSEUM PROGRAMS AND RELATED RESEARCH (SPECIAL FOREIGN CURRENCY PROGRAM)

Commitment of Funds by Country

Fiscal Years 1970, 1971 and 1972

<u>Country</u>	<u>1970 Actual</u>	<u>1971 Estimate</u>	<u>1972 Estimate</u>
Burma	\$ --	\$ 1, 000	\$ --
Ceylon	661, 242	--	--
Egypt	154, 411	250, 000	300, 000
Guinea	--	5, 000	10, 000
India	475, 348	600, 000	1, 500, 000
Israel	946, 659	750, 000	600, 000
Morocco	72, 947	150, 000	600, 000
Pakistan	27, 048	140, 000	250, 000
Poland	71, 938	64, 000	420, 000
Tunisia	623, 883	200, 000	1, 200, 000
Yugoslavia	532, 773	340, 000	620, 000
	<u>\$3, 566, 249</u>	<u>\$2, 500, 000</u>	<u>\$5, 500, 000</u>

FOREIGN CURRENCY GRANTS TO THE SMITHSONIAN

Senator BIBLE. How many of the proposed contracts and how many dollars are proposed for use by the Smithsonian Institution and its bureaus?

Dr. Challinor. The number of dollars of the \$5.5 million we are asking for that would go to Smithsonian Institution scientists is very difficult to predict. We can simply go on the basis of our past experience. We would estimate somewhere between 15 and perhaps 20 percent at the very highest for purely Smithsonian projects since each of these has to be reviewed by outside scientists. The proposals including those of Smithsonian scientists are reviewed by peers and authorities in the respective fields.

There is no priority given to the Smithsonian scientists to participate in this program. They have to meet the standards of their professions.

Senator BIBLE. Is this simply another means of providing additional funds for these bureaus and activities of the Smithsonian Institution?

Dr. RIPLEY. No sir. I think of the foreign currency program as a source of grant funds accessible to Smithsonian scientists just as funds from the Ford Foundation or the World Wildlife Fund might be accessible through competition with scholars throughout the United States. It does, of course, provide funds for the research of Smithsonian scientists but it is not available to them through an administrative process like the Salaries and Expenses appropriation of the Institution. The allocation of funds is made on the advice of the various advisory councils of leading scholars from across the country.

Senator BIBLE. Please supply a report of obligations by objects.

(The information follows:)

SPECIAL FOREIGN CURRENCY PROGRAM
Obligations by Objects

Individual foreign currency grants contain budgets prepared according to object class. These grants are, however, obligated under object class 410, Grants, Subsidies and Contributions, in accordance with established federal practice. Nevertheless, we are able to provide for the record a breakdown summarizing fund uses under grants obligated in FY 1971 through February 28. We have initiated this year a computer accounting system to facilitate monitoring and controlling this appropriation which makes the following breakdown possible:

MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)

Obligations by Object Class
Fiscal Year 1971 through February 28

	<u>Dollar equivalent</u>
11 Personnel Compensation	472,172.80
12 Personnel Benefits	443,112.00 ^{1/}
21 Travel and Transportation	362,575.80
22 Transportation of Things	35,860.00
23 Rent, Communications and Utilities	30,648.00
24 Printing and Reproduction	48,199.00
25 Other Services	128,413.20
26 Supplies and Materials	73,782.20
31 Equipment	<u>63,024.00</u>
	1,657,787.00
41 Grants - Prior Years, Additions	<u>322,213.00</u>
Total Obligations FY 1971 through February 28	<u><u>1,980,000.00</u></u>

^{1/} Includes housing and living allowances

SALARIES PAID BY SPECIAL FOREIGN CURRENCY GRANTS

Senator BIBLE. How much of the salaries and expenses of the personnel of the several Smithsonian Bureaus designated as recipients of funds for these projects are paid with funds provided by the special foreign currency program?

Mr. CHALLINOR. I will provide that for the record.

(The information follows:)

None of the employees of the Smithsonian bureaus receive salaries out of funds provided by the Foreign Currency Program. All grantees, Smithsonian or otherwise, hire staff abroad who are compensated out of our foreign currency grants. Moreover, American scholars, particularly graduate students, may receive salaries in foreign currencies provided they are not otherwise compensated by their institutions. Expenses associated with approved research undertaken in the "excess" foreign currency countries are, of course, also met with Smithsonian grant funds.

DOLLAR COSTS OF ADMINISTERING THE PROGRAM

Senator BIBLE. What is the U.S. dollar cost for the proportionate share of these salaries with reference to its foreign currency program? How many hard dollars would you have to have in there?

Dr. CHALLINOR. The dollar costs are primarily for the administrative costs here in Washington. We estimate we can operate this program in foreign currency for about 3 percent.

In other words, we received \$2.5 million in fiscal year 1971. We are able to operate the foreign currency program with approximately 90,000 hard dollars.

Does that answer your question, Mr. Chairman?

Senator BIBLE. It answers what you did this year, and I suppose it keeps the same proportion, but if you have a program of \$5.5 million, how many hard dollars does that take to operate?

Dr. CHALLINOR. We expect to reduce the percentage cost considerably, since we have the mechanism set up to handle this grant procedure operation efficiently. I expect our dollar cost percentage to decline considerably from what it is now.

Dr. RIPLEY. We estimate approximately \$93,000 for personnel costs and a total of about \$108,000.

Senator BIBLE. \$108,000 to operate the program.

Dr. RIPLEY. Yes, to operate a full program of \$5.5 million.

Senator BIBLE. \$5.5 million in special foreign currency.

Dr. RIPLEY. Yes, sir.

CONSTRUCTION AND IMPROVEMENTS, NATIONAL ZOOLOGICAL PARK

Senator BIBLE. The capital improvement program proposed for the National Zoological Park in the coming fiscal year is \$200,000. The justification statement will be printed in the record.

(The justification follows:)

CONSTRUCTION AND IMPROVEMENTS
NATIONAL ZOOLOGICAL PARK

1970 Appropriation . . . \$600,000
1971 Appropriation . . . \$200,000
1972 Estimate \$200,000

In 1963, Congress approved the concept of a 10-year master development plan for the National Zoological Park. Funds, averaging \$1.8 million a year, were appropriated from 1963 to 1968 in support of the master plan. The Bird House, Great Flight cage, deer area, hoofed-stock area, Hospital and Research building, roads and parking lots, utilities, sewerage, heating plant, and improvements in the electrical distribution system were all completed using the original master plan and the funds appropriated by Congress. In fiscal year 1968, Congress appropriated only \$400,000 and work was scaled down to only those improvements required to extend the useful life of the facilities not yet replaced and some minor repair projects. Improvements to the Zoo's facilities were further slowed in 1970 because the Zoo was required to reimburse the District of Columbia \$168,000 for contractor claims resulting from fiscal years 1964 and 1965 work. In addition, in February 1970 a portion of the master plan was rejected by the Commission of Fine Arts. This rejection means that the plans for the future physical development of the Zoo must be revised embodying a different philosophy of design. We have just entered into a contract with the architectural firm of Faulkner, Fryer & Vanderpool for a revision and updating of the Master Plan, including schematic drawings for all facilities. This will give us the most complete overall plan we have ever had. We will have more reliable cost estimates at today's construction cost levels. We plan to take a hard look at the construction and rehabilitation of the entire Zoo at this time. We will have an opportunity to take advantage of the very latest techniques in animal habitat as well as the accommodation of the visitor. This will require a minimum of one to two years' design effort. In the interim, an appropriation of \$200,000 is requested to continue to work on the large backlog of deferred renovation and repair projects such as the following.

- The perimeter fence is in a bad state of repair and presently, due to vandalism, floods in Rock Creek, as well as deterioration from age, does not afford the security that the Zoo requires. In August 1970, the Zoo lost four waterbucks as the result of an attack by two stray dogs that entered through openings in the fence. The length of the present fence is 3.7 miles. It crosses Rock Creek twice. Probably 70 percent of the fence will have to be replaced and an engineering design will be required at the points where the enclosure crosses Rock Creek in order to prevent future washouts by the creek when at flood stage.
- The addition of a new water main loop at the south end of the Zoo is needed in order to correct water pressure deficiencies in the area of the Lion House and to insure an adequate supply of water for the boiler plant, which has been rehabilitated.
- Many of the existing buildings are in need of attention beyond the routine maintenance accorded them. The Commissary in the basement of the Reptile House that handles food for the entire animal population of the Zoo requires new equipment along with replacement and remodeling of much of the present equipment. The old Hospital, which has been vacated by the Animal Health Department, requires remodeling to accommodate the Department of Living Vertebrates. The Bird House area requires replacement of the existing crane, pheasant, and owl cages which are badly deteriorated and require repair.
- The sidewalks are in need of repair and some need to be replaced.

VISIT TO THE ZOO

Senator BIBLE. We are going to go out and visit Dr. Reed and he is going to tell us about the construction improvements needed at the zoo, and we will do it before we proceed with the budget. You can, if you would like, Doctor, furnish for the record, because I am sure all the members of the subcommittee won't be able to go out and look at the zoo, what it needs in the way of construction, in deciding the old dilapidated lion house that is about ready to fall down; and you can point out to us when we get there the amounts of money required. It is a vital question to keep this updated, and I know over the years, from my past association with the District of Columbia Committee, the great difficulty getting money for the zoo.

They had great difficulty getting money for human beings, and in the order of priorities, they always put the human being just a little ahead of the animals, and I suppose that is a correct rating of priorities.

(The information follows:)

National Zoological Park
Requirements for Modernizing and Redeveloping

The entire Zoo needs to be modernized, expanded and redeveloped. There are approximately 50 acres that at the present time are not being utilized. Our Master Plan anticipates developing this unused area for animal exhibits and maintaining a pleasant park-like atmosphere for our visitors.

Presently the design team of Faulkner, Fryer and Vanderpool (architects and engineers), Lester Collins (landscape architect), and Architectural Graphics Associates (graphics designers) are engaged in the redesign of the Zoo Master Plan. This design team is seeking to fully exploit the potential of the National Zoological Park site, and in keeping with the admonition of the Commission of Fine Arts, they are developing designs which will emphasize the animals and the landscape. The role of architecture, buildings per se, will be one of support for the exhibition of animals in a pleasing landscape. To accomplish this end, the visual impact of buildings must be minimized. This will apply particularly to new exhibits and facilities. Existing buildings to be retained and remodeled represent a challenge in this area since their sizes and architectural styles, established over the last 80 years, cannot be easily dismissed. We anticipate that judicious landscaping along with the unification of site design, walks, vine covered arbors, and site furniture will be directed toward the lessening of the visual prominence of existing buildings.

The program for modernizing and redeveloping was started in 1960 and we have accomplished some of our objectives. The Bird House, the Great Flight Cage, two buildings for the hoofed-

stock which must be exhibited inside during the winter. We call -- - this the Delicate Hoofed-stock building, A complex for the hardy hoofed-stock which only needs the minimum protection during the winter, and the new Research and Animal Hospital building. We have also made corrections in the sewage system, expanded the electrical system, modernized the heating facilities, and improved the automotive circulation by new roads and additional parking.

All of the major buildings need remodeling as they are now over 30 years old. This would be improving the exhibits to present the animals in a more pleasing and modern manner as well as taking advantage of the newer mechanical features for handling and managing the animals. Several of the buildings are so dilapidated that they need to be completely replaced. The Lion House is a classical example. This entire facility will be replaced with modern exhibits in which there are no visual bars between the visitors and the animals. This will make a much more pleasing exhibit for the visitors and a much more comfortable and pleasing home for the animals. At the present time we are putting patches on top of patches in the Lion House to maintain it until it is replaced. The bear pits need to be replaced as well as the 60-year old monkey house. The monkeys and apes need to be exhibited and housed in quarters that are both educational and pleasing to the public as well as meeting the needs of the animals for space and environmental conditions.

We will present to you at a later date our completed Master Plan which will show how we anticipate the Zoo will look in the future.

MASTER PLAN FOR THE ZOO

Senator BIBLE. When do you expect revision and updating of the master plan to be completed in connection with the National Zoo?

Dr. REED. That can be done within this fiscal year.

Senator BIBLE. You mean fiscal year 1971?

Dr. REED. I meant the budget year, 1972, Mr. Chairman.

Senator BIBLE. It should be done by June 30, 1972?

Dr. REED. I anticipate it will be completed about January of 1972.

Senator BIBLE. Thank you.

How much do you have on hand to pay for this work now?

Dr. RIPLEY. The fiscal year 1971 appropriation was \$200,000 for repairs and we are requesting an additional \$200,000 in 1972, still for repairs.

Senator BIBLE. I am talking about the revision and updating of the master plan, so we are talking about the same thing.

Dr. REED. Sir, the money for that has already been appropriated and we are under contract now with the architects.

Senator BIBLE. You have sufficient money on hand to take care of that?

Dr. REED. Master planning, yes, sir.

Senator BIBLE. I am just referring to the master planning.

RESTORATION AND RENOVATION OF BUILDINGS

For Restoration and Renovation of Buildings, you are asking \$1,050,000, a decrease of \$675,000, under the amount provided in fiscal year 1971. However, you did receive a supplemental appropriation for the Museum of History and Technology of \$775,000, to repair fire damages.

The justification for the request will be placed in the record.

(The justification follows:)

RESTORATION AND RENOVATION OF BUILDINGS

1970 Appropriation.....	\$425,000
1971 Appropriation.....	\$1,725,000
1972 Estimate.....	\$1,050,000

An appropriation of \$1,050,000 is requested for the following projects:

Renwick Gallery	\$400,000
National Museum of History and Technology	500,000
Sewer System Improvement-South Buildings	125,000
Lamont Street Library Improvements	25,000
Total estimate 1972	<u>1,050,000</u>
Less amount appropriated in 1971	<u>1,725,000</u>
Decrease in 1972	\$-675,000

Renwick Gallery

An appropriation of \$400,000 is requested to complete the program of exterior and interior restoration of the Renwick Gallery.

Using funds previously appropriated, the Smithsonian has directed its efforts at the restoration of the Renwick Gallery's basic structure. An air cooling plant was installed in the Gallery. The need for this system was not anticipated in the FY 1971 budget request. As part of the restoration process, an air conditioning system was installed in the building which could use cold water supplied by the General Services Administration. The Smithsonian was informed late last year by the GSA that cooling water could only be supplied on a 5-day week, 8-hour, basis. In order to meet the needs of the museum which must maintain a constant temperature and humidity to safeguard the collections; it was necessary to install a revised cooling plant. The exterior stonework, entranceways, and the interior corridors, lobbies and galleries have been renovated to the point where the final or finishing work can be started. This finishing work, the full extent of which could not be determined until the basic structural work was completed, includes the replacement of the sidewalk around the building, exterior lighting fixtures, the cast iron grillwork on the roof and windows, the finishing, painting and gilding of arches and columns, marbleizing of woodwork in the central halls and stairways, and the replacement of damaged marble in the floor of the building. This work will be designed to restore the exterior and certain areas of the interior of the building to their original appearance, as designed by James Renwick in 1859.

In addition, it is necessary to complete storage facilities, to provide gallery furnishings for use by the public in the restored interior areas of the building, and to recast exterior sculpture for the facade as well as to install an essential bird-proofing system.

National Museum of History and Technology
Bicentennial Facilities

An appropriation of \$500,000 is requested for the preparation of plans and specifications for the Bicentennial facilities to be added to the National Museum of History and Technology, and to design exhibits for these facilities.

As part of the Smithsonian's contribution to the American Revolution Bicentennial celebrations, the National Museum of History and Technology plans to convert the terraces of its building into usable space by the construction of structures on the sides of the building. The purpose of these structures will be to house certain national treasures and exhibits relating to the twin themes

of the Museum's Bicentennial participation--what the nations of the world gave to make the United States of America, and in turn what the United States has given to the nations of the world.

The National Museum of History and Technology will conclude a feasibility study for the Bicentennial structure project in fiscal year 1971. The completion of the study will permit the Museum to proceed on July 1, 1971, with developing final architectural plans. Construction would begin in fiscal year 1973 and be completed no later than January 1, 1975, to allow one year for installation of exhibitions. Total structural costs are estimated to be \$4,500,000, while the exhibits will cost an additional \$1,000,000.

Sewer Systems Improvements-South Buildings

An appropriation of \$125,000 is requested to correct a serious sewer problem for the buildings on the south side of the mall.

The three Smithsonian buildings on the south side of the Mall, Smithsonian Building, Arts and Industries Building, and the Freer Gallery of Art, empty both their sanitary wastes and rainwater runoff into the District of Columbia sewage system through single pipe systems. This type of system has two serious drawbacks--overloading the treatment plants and a tendency to backflow during heavy rains. Because the rainwater runoff and the sanitary system wastes are mixed, large quantities of polluted water are discharged into the river. The District of Columbia is in the process of converting to a separate system to reduce the load upon the already overloaded sewage treatment plants. The Smithsonian must be able to tie into this system. In addition, flooding of the buildings during heavy rains, because of the limited ability of the pipes to carry off rain water, occurs frequently. By replacing the single pipe system with separate and larger sanitary and drain pipes, flooding can be eliminated.

Lamont Street Library Modifications

An appropriation of \$25,000 is requested to modify space at the Smithsonian's Lamont Street facility to house library materials.

At the present time, the library is extremely short of shelf space for library materials. A study of available space at the Smithsonian showed that the space formerly occupied by the Department of Entomology at Lamont Street, which recently moved back to the Natural History Building, could be modified by the addition of flooring, partitions, shelving and lighting to serve as an overflow facility for library materials. The library is temporarily storing about 40,000 books in cartons and boxes at the Lamont Street facility because of lack of space in the Mall buildings. With the modifications about 50,000 volumes could be handled at this facility, all of which would be accessible for use by researchers.

RENWICK GALLERY

Senator BIBLE. Will the amount you ask for the Renwick Gallery be enough to complete construction? You said that would be completed by September?

Mr. BRADLEY. That repair should be completed by December of this calendar year.

Senator BIBLE. December or September?

Mr. BRADLEY. December, Mr. Chairman.

Senator BIBLE. Is the amount sufficient to complete it?

Mr. BRADLEY. That is sufficient to complete the agreed construction, yes, sir.

BICENTENNIAL FACILITIES

Senator BIBLE. Where in your fiscal year 1971 budget is there money to accomplish a feasibility study for the bicentennial structure proposed for the Museum of History and Technology?

Mr. BRADLEY. That was included, sir, in the amount given for bicentennial activities. That was not included, as sometimes we do, in a feasibility study request.

CONSTRUCTION

Senator BIBLE. The construction budget of the Smithsonian Institution amounts to \$5,597,000 in 1972.

The justification of the amount will be printed in the record.

(The justification follows:)

CONSTRUCTION

1970 Appropriation.....\$3,500,000 $\frac{1}{/}$
 1971 Appropriation.....\$5,200,000 $\frac{1}{/}$
 1972 Estimate.....\$5,597,000 $\frac{1}{/}$

CONSTRUCTION

Joseph H. Hirshhorn Museum and Sculpture Garden

By the Act of November 7, 1966, the Congress provided a site on the Mall for the construction of the Joseph H. Hirshhorn Museum and Sculpture Garden, and provided statutory authority for the appropriation of construction and operating funds. Within this appropriation authority, \$803,000 were appropriated in fiscal year 1968 for the preparation of plans and specifications. In fiscal year 1969, \$2,000,000 were appropriated for plans and to start construction. Contract authorization was granted by language in that appropriation bill in an amount not to exceed \$14,197,000. An additional \$3,300,000 was appropriated in 1970 and \$5,200,000 in 1971 toward liquidation of the contract authority.

Construction was started in March 1970 and the excavation and foundation construction is in progress. Construction is proceeding on schedule with no major delays being anticipated at this time. An appropriation of \$3,697,000 is requested for fiscal year 1972 in order to liquidate the remaining contract authority. This appropriation, with the \$1,000,000 legally committed by Mr. Hirshhorn, will complete funding of construction contracts and finance supervision and related construction management costs. This will allow for the completion of the construction in time for the planned opening of the Museum in late fiscal year 1973.

CONSTRUCTION

National Air and Space Museum Planning

The Act of August 12, 1946, established the National Air Museum as a bureau of the Smithsonian Institution. The Congress included provisions for selecting a site for a National Air Museum building to be located in the Nation's Capital. By the Act of September 6, 1958, the Congress designated a site for a building to be on the Mall from Fourth Street to Seventh Street, Independence Avenue to Jefferson Drive. Planning appropriations in the amount of \$511,000 and \$1,364,000 were made available to the Smithsonian by the Congress for the fiscal year 1964 and 1965 respectively. In 1966, the Congress enacted legislation authorizing the construction of the National Air and Space Museum but deferred appropriations for construction until expenditures for the Vietnam conflict had shown a substantial reduction. Construction plans and specifications for the proposed museum building were completed and were accepted by the Commission of Fine Arts and the National Capital Planning Commission. The cost of the buildings, built to those plans and specifications, was estimated to be \$40 million dollars in 1965. Unfortunately due to the rising costs of labor and materials, this same building would cost between \$60 million and \$70 million, to construct depending on the increase in costs and the date of the beginning of construction.

The space program, with its Mercury, Gemini, and Apollo flights, has caused a considerable increase in the public's interest in aeronautical and aerospace matters. During 1970, almost 4.5 million visitors were counted in the Arts and Industries Building and the Air and Space Building, both of which

$\frac{1}{/}$ Fiscal year 1970 and fiscal year 1971 liquidation of Contract Authority.
 Fiscal year 1972 \$3,697,000 liquidation of Contract Authority. \$200,000 in 1970 was appropriated to move the Armed Forces Institute of Pathology.

are used to house temporarily a very small portion of the collections and exhibits of the National Air and Space Museum. With the additional space available in the new building, the National Air and Space Museum will be able to use a wide range of the more than 200 aircraft and thousands of aerospace objects in the collections to interpret the historical and technological progress of aviation and aerospace science to the millions of visitors that will come to the Museum annually. The Air and Space Museum already has in its collections such historically significant aircraft as the original Wright Brothers Flyer, Lindburgh's "Spirit of St. Louis," the NC-4 (the first to fly the Atlantic), the Bell X-1 (first to exceed the speed of sound) as well as Mercury, Gemini, and Apollo spacecrafts. To demonstrate and exhibit technological progress, the Museum can choose from literally hundreds of engines, power plants, and ancillary equipment ranging from simple rotary engines built at the turn of the century to the huge Saturn F-1 engine which produces millions of pounds of thrust. This collection of aeronautical and aerospace items which many consider the finest in the world, needs only the additional space provided by a new Museum to be displayed properly to the public.

During a Symposium on the National Air and Space Museum which was held on January 18, 1971, Senator Barry Goldwater, Dr. Wernher von Braun, Congressman Frank T. Bow, and Congressman James G. Fulton jointly proposed the following resolution be presented to the Board of Regents of the Smithsonian Institution.

--That the Smithsonian Institution should press for construction of the authorized National Air and Space Museum building;

--That a study of changes in the original approved design should be undertaken immediately in order to determine the feasibility of lowering construction costs;

--That a firm date of July 4, 1976, should be established for the opening of the new museum building as a major element of the Smithsonian Institution's contribution to the commemoration of the Bicentennial of the American Revolution;

--That consideration be given to constructing a major underground parking facility beneath the Mall in order to alleviate the increasing problem of automobile parking in the vicinity of the Mall;

--That consideration of the joint venture by the National Park Service and private capital be explored. This action would complement the requirement for parking facilities as a significant factor in construction of the National Air and Space Museum.

In consideration of the rising costs of the building and the increased public interest in air and space activities, an appropriation of \$1,900,000 for planning and redesign, and for the specifying of programs, facilities, and installations is requested. The object of this redesign would be to utilize the latest design, construction, and exhibit techniques to lower the cost of the building to approximately \$40 million, which still providing outstanding facilities to display properly the many unique aeronautical and astronautical items in the collections.

The Senate Committee on Rules and Administration has advised that a request by the Smithsonian for redesign funds would be consistent with the Committee's 1966 recommendation regarding construction funding.

JOSEPH H. HIRSHHORN MUSEUM AND SCULPTURE GARDEN

Senator BIBLE. \$3,697,000 is required for construction of the Hirshhorn Museum. Did you give us an estimate of when that construction work would be completed?

Dr. RIPLEY. Yes, sir; we did, September 1972.

Senator BIBLE. September 1972. That is where I got the September before.

We can't forecast end effects, but do you have an answer you care to make on the Hirshhorn Museum as a result of the hearings in the House of Representatives, and the proposal to eliminate part of the construction on the Hirshhorn?

Dr. RIPLEY. We have been very much in touch with the House committee which held the hearings last summer, and after their report was published in December 1970, we called the members of the committee and assured them that we would undertake to recognize their wishes in this regard. As a result we have been continually in contact with the various commissions, National Capital Planning Commission, the Fine Arts Commission, the architect of the design, Mr. Hirshhorn himself, who, of course, is involved, to see whether we could, in effect, moderate the plan subject to the wishes of the congressional subcommittee effectively and still adhere to our contract through GSA with the contractor.

We are still studying this, and we believe that it may be possible to do so. We cannot say at this moment.

Senator BIBLE. I don't expect you to. What is the center of controversy? What is the House's objections?

Dr. RIPLEY. It was the cross-Mall trench-like structure proposed by the architects and approved by the Commission for the sculpture garden. That was the sole bone of controversy that arose from the hearings.

Senator BIBLE. The House took the position, or seems to take the position that that is inconsistent with the character of the gardens and the Hirshhorn monument?

Dr. RIPLEY. They took the position that the invasion of the center grass strip of the Mall which runs east and west was inconsistent with the master plan for the Mall.

Senator BIBLE. I see. So the inconsistency lies in the construction of the crosswalk vis-a-vis the maintenance of the Mall as laid out in the overall L'Enfant plan?

Dr. RIPLEY. The most recent plan was 1901, which called for the open expanse of grass and the most recent Mall plan as an adjunct of the Pennsylvania Avenue Commission plan had brought in the idea of the cross-Mall axis at Eighth Street.

What we have been studying is ways in which we could live within our contractual authority and eliminate the invasion of the grass strip which the House committee took exception to.

Senator BIBLE. Very well. I think I understand what the controversy is.

QUESTIONS BY SENATOR PERCY

Senator BIBLE. Senator Percy is unable to be here today. Will you, therefore, please answer these questions of his for the record?

(The questions and answers follow:)

RESPONSES TO QUESTIONS BY SENATOR PERCY

Question. The President has approved a very substantial increase in your budget request for fiscal year 1972. Can you give us their reasons for backing this increase?

Answer. The allowed increase for general operations and special programs amounts to \$8,672,000. About 46 percent of this increase, \$4,016,000, is in the science area. For many years the Institution has been a recognized leader in specialized science areas, particularly astrophysics, biology, and systematics. Systematics is research that deals with studying the classification, population, and distribution of animal and plant life on earth through collections of specimens. In astrophysics we provide the science community with basic information related to the earth's atmosphere, the solar system, and the universe. In radiation biology we have a long-term interest in the effects of sunlight on plant growth. If, as a nation, we are going to try to solve our environmental problems, then the Smithsonian collections and the basic research we conduct are very important. We are now beginning to use our resources in new ways, such as research on mercury in fish and DDT in bird eggs, the Radiation Biology Laboratory's sunlight experiments, the Smithsonian Astrophysical Observatory's laser potential, and our new interdisciplinary environmental sciences program.

Ecological investigations concerned with identifying long-term factors affecting environmental balance increasingly are becoming dependent on analysis and information constructed around specimen collections from ages past and around basic scientific monitoring of atmospheric conditions. We feel work of this nature is gaining wider recognition and acceptance, and constitutes a major reason why we are being allowed to request more money for our science activities.

Over the past years, the Congress and the President have given us valuable support in the development of our history and art and public service activities. These areas of our museum operations are the most popular with the general public; the benefits to be gained from supporting our activities in portraying the country's heritage through art and history collections are most visible. We are requesting an increase of \$3,247,000 (about 37% of the total increase) in history and art, and public service areas. This will allow us to continue development of the Joseph H. Hirshhorn Museum. The requested increase also will help provide essential support required for basic operations in order that the established and developing museums and art galleries of the Smithsonian can effectively tell the story of American civilization to millions of visitors annually.

In this portion of our request, we have been allowed to seek \$1,000,000 for funding the National Museum Act and \$525,000 for initiating a new exhibits effort within the Institution. The *Belmont Report*, prepared by the American Association of Museums in response to a request by President Johnson, identified the financial plight of the Nation's museums, now visited by some 600 to 700 million persons a year, and stated that the cultural and educational resources of these museums might not continue to be available if assistance was not forthcoming. There is a great deal of work to be done in museums, but we badly need a co-ordinated program to provide training to museum people so the work can be accomplished. Funding of this Act will represent a major step forward in beginning to meet the needs of museums across the country regarding conservation, collection cataloging, and exhibit services.

As regards our special exhibits request for an environmental sciences hall called the World of Living Things, we feel one of our highest priorities for the next several years is to rebuild our permanent exhibits program in order to serve the public interests in new and more meaningful ways.

The balance of the requested increase, \$1,409,000, will be devoted to increased costs of plant maintenance, protection, and the provision of central support. These activities, while they attract less attention than our programs, are nonetheless vital to the Institution. The success or failure of our program operations depends upon our ability to provide them with adequate administrative and central services.

Question. Have your past budget requests been sufficient to keep pace with the cost of inflation? What will be the result if this year's increase is not granted?

Answer. Since 1968 the "Salaries and Expenses" operations of the Institution have increased by approximately \$8,800,000, or at a rate of about 11% per year.

This excludes the Zoo and the Science Information Exchange for comparative purposes, and assumes the requested pay supplementals are approved.

We estimate that about 67% to 70% of this increase has been eroded by inflationary price increases and the necessity of improving the competitive salary situation in government. In addition, at least 6% has been devoted to costs associated with utilization of new building space, such as the Renwick Gallery and the Fine Arts and Portrait Galleries. This leaves us with a real increase of about \$2,000,000 to \$2,300,000, or an average amount usable for program development of \$700,000 to \$800,000 per year. Thus, the apparent appropriation increases received since 1968 reduces to a real annual growth in the Smithsonian base of about 3%.

Most of the new program growth related to the real increase in base funding that took place this last year (between fiscal 1970 and fiscal 1971) was in the special funding appropriations of \$550,000 received for the Bicentennial Celebration (\$400,000) and the Environmental Sciences Program (\$150,000). We hope to continue these programs in fiscal year 1972. However, as you can see, much remains to be done in other areas of the Institution's operations to keep ahead of inflationary pressures.

We believe that, as a partial answer to your earlier question, the matter of inflationary inroads on our base funding were taken into consideration by the Executive Branch. If the past holds any precedent for the future, we can only speculate that a 10% or 11% increase in our base funding will not go very far, and would represent largely a holding action for most areas of operations.

Question. Without a substantial increase, will you be able to hold onto senior personnel, especially in the scientific field?

Answer. In the past we have had people leave the Institution and return to universities or other research organizations because we have not been able to provide them with adequate levels of funding in terms of equipment, field supplies and operating support. By the same token, we have had people come to us and, after a period of time, indicate that our back-up support was far short of that available in good universities and colleges. We are working very hard to improve this situation, and our fiscal 1972 budget request is geared to help correct the current support deficiencies in several areas, such as the National Museum of Natural History and the National Museum of History and Technology.

Question. What are your present average salary levels, particularly for scientific personnel?

Answer. Professional scientific personnel (those with a Ph. D. or equivalent and qualified to originate and conduct basic research or curation) average about \$22,800 in salary.

Technical support (illustrators, museum technicians, laboratory aids, etc.) average about \$10,600.

Office assistants (clerks, typists, and secretaries) average \$8,300.

These figures exclude benefits which in the case of professional staff would run about \$2,000 additional per year.

Also, they do not reflect the inadequate ratio of staffing between professional staff and technical/office personnel support, or our low levels of support funding per professional in the form of equipment, supplies, field support, etc.

SUBCOMMITTEE RECESS

Senator BIBLE. We will be in recess until Monday morning, when we will hear the Members of Congress.

Thank you all, gentlemen.

(Whereupon, at 2:45 p.m., Friday, March 19, the committee was recessed, to reconvene at 10 a.m., Monday, March 22.)

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SMITHSONIAN INSTITUTION LIBRARIES



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